



Power Platform App in a Day

Module 5: Power BI
Hands-on Lab Step-by-Step

September 2018

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Power BI

Lab Prerequisites

This is the fifth lab in a five-part series covering PowerApps, Common Data Service, Flow and Power BI. The assumption is that you have successfully completed the first four modules, or at least the initial part of setting up an environment as described in the overview – **“00-AppInADay Lab Overview.pdf”**.

If you have not completed the previous modules, you can use the completed version of the lab package in the “\Completed\Module4\Completed Solution” folder. Follow the instructions in the document “Complete Solution” before proceeding with this module, which will provision the app and the Common Data Service entity into your environment.

About Power BI

[Power BI](#) is a suite of business analytics tools that deliver insights throughout your organization. In this lab, we will be using Power BI to visualize data from the device procurement process. Power BI can connect to hundreds of data sources and prepare the data for use. In this lab, you will be using the Common Data Service and the Excel connectors.

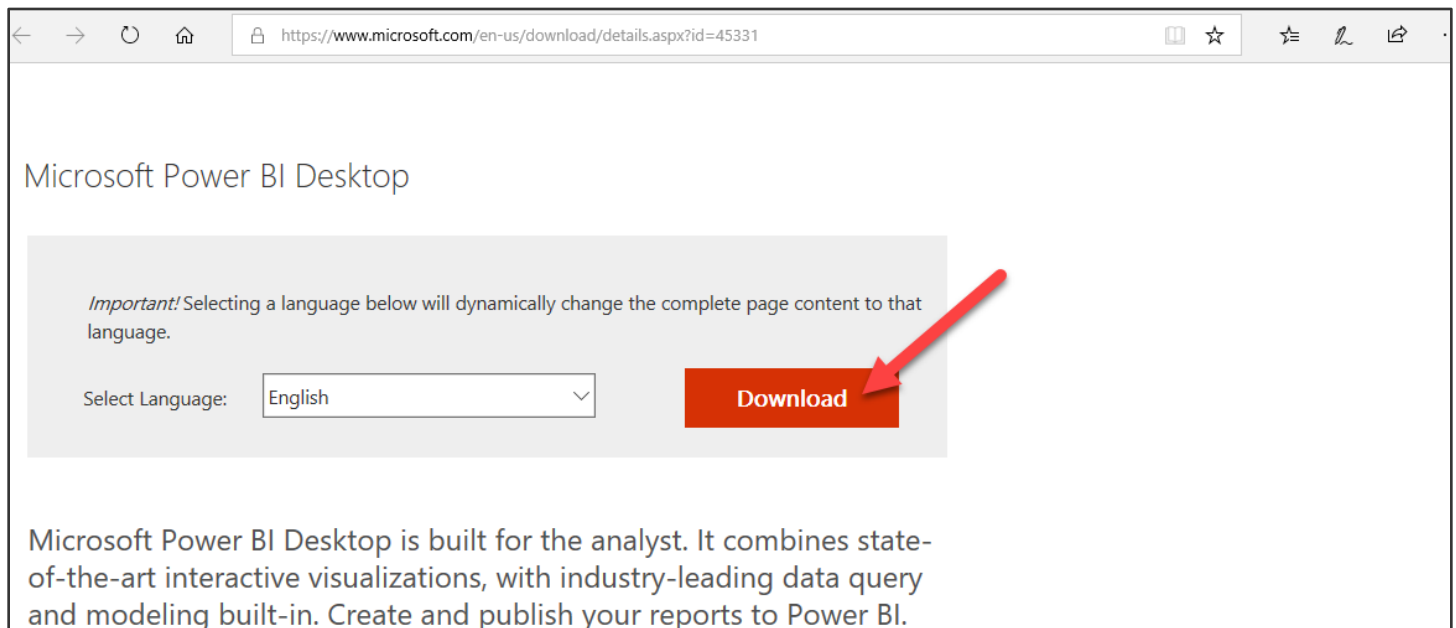
Exercise 1: Install Power BI Desktop

In this exercise you will install the Power BI Desktop application. **If you already have the application installed, you may skip to Exercise 2.**

Task 1: Download and install Power BI Desktop

In this task, you will download and install Power BI Desktop.

1. Navigate to <https://www.microsoft.com/en-us/download/details.aspx?id=45331> and click Download.



2. Select the appropriate version for your computer and click Next.

Choose the download you want

<input type="checkbox"/> File Name	Size
<input type="checkbox"/> PBIDesktop.msi	175.7 MB
<input checked="" type="checkbox"/> PBIDesktop_x64.msi	194.6 MB

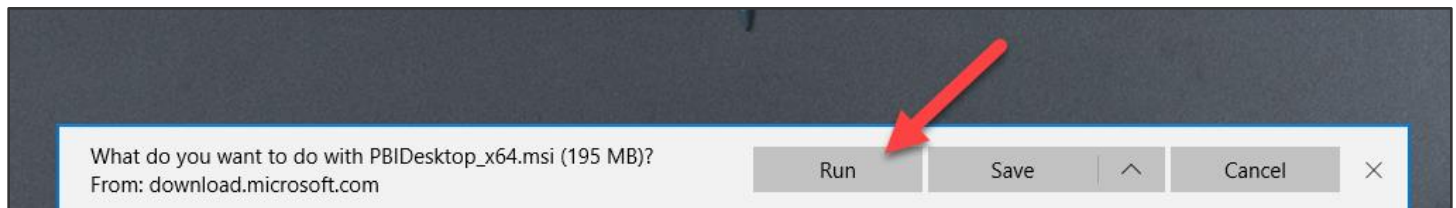
Download Summary:
KBMBGB

1. PBIDesktop_x64.msi

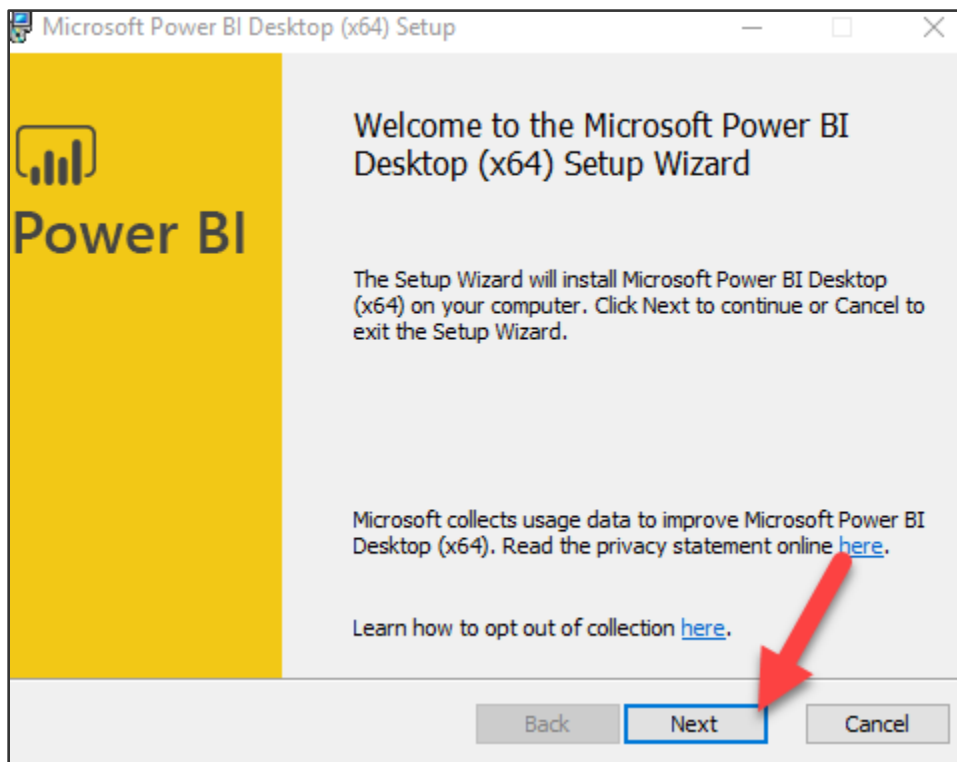
Total Size: 194.6 MB

Next

3. Click Run.



4. Click Next.



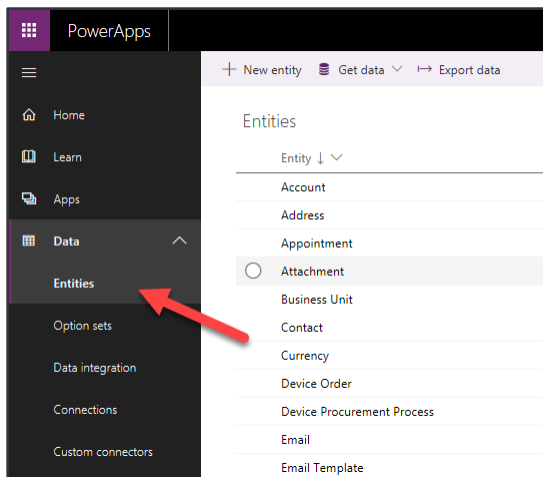
5. Follow the installation wizard and complete the installation.

Exercise 2: Import historical data

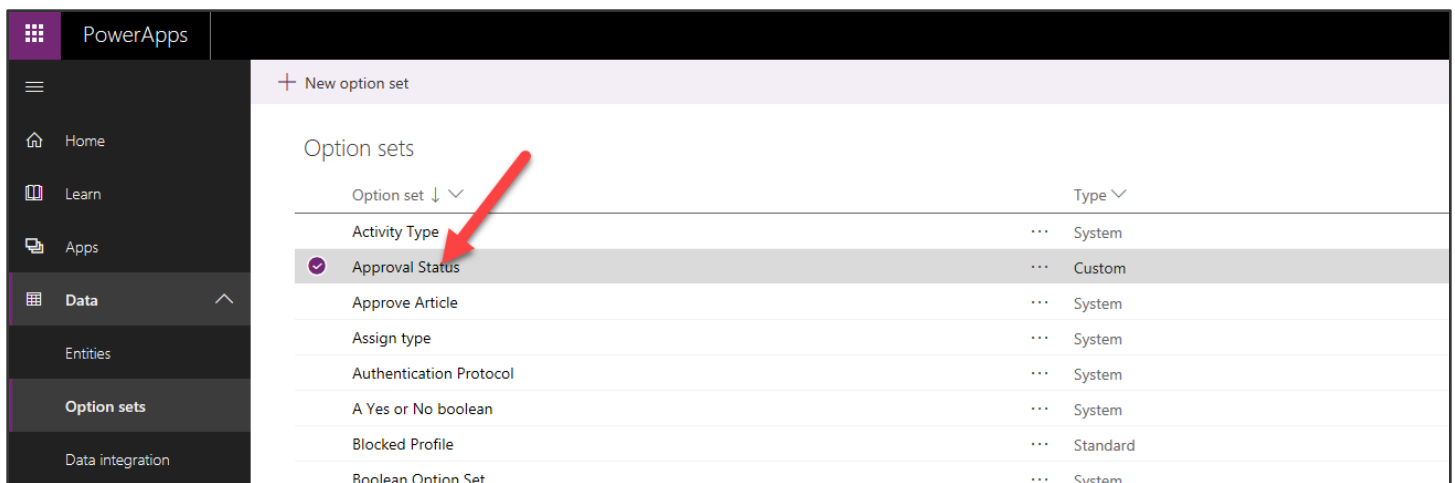
Task 1: Import past orders into Common Data Service

Since you probably only input four or five device orders when testing the PowerApp you built in the prior modules we need more test data to report on. To make the Power BI Analytics more interesting we need some additional data. In this task you will be importing some historical orders into the CDS Device Orders entity.

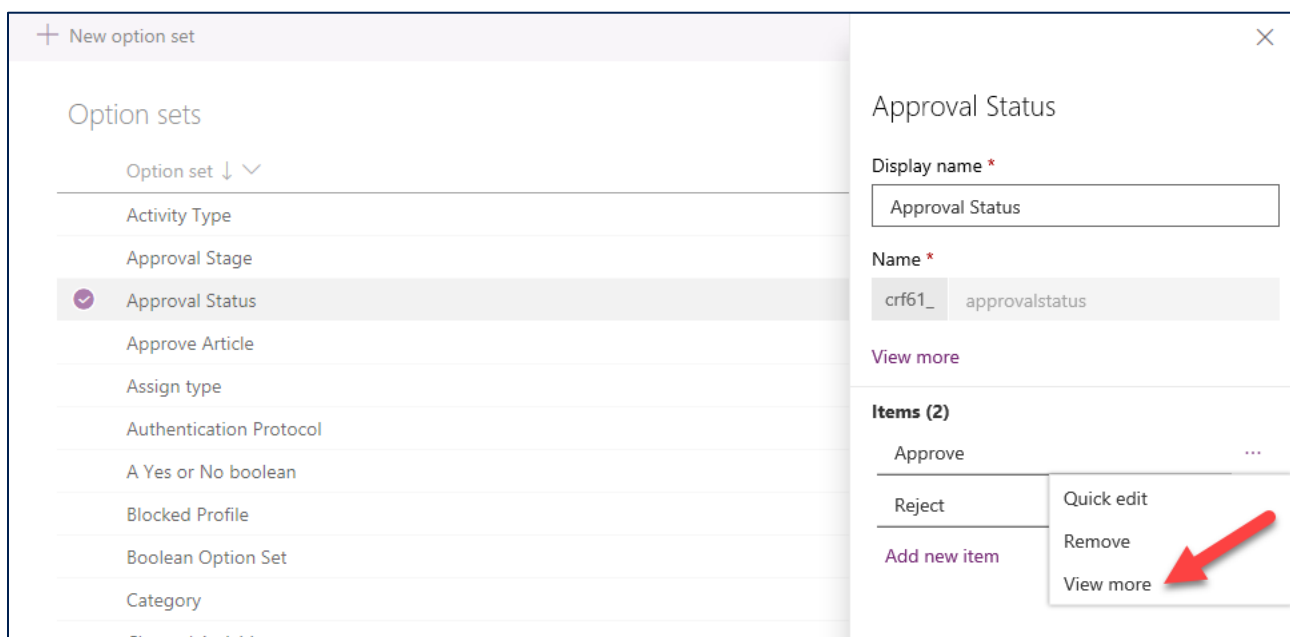
1. From web.powerapps.com, log in to your existing PowerApps Environment that has your CDS data that you have used for the prior labs. Select your environment and choose **Data**.



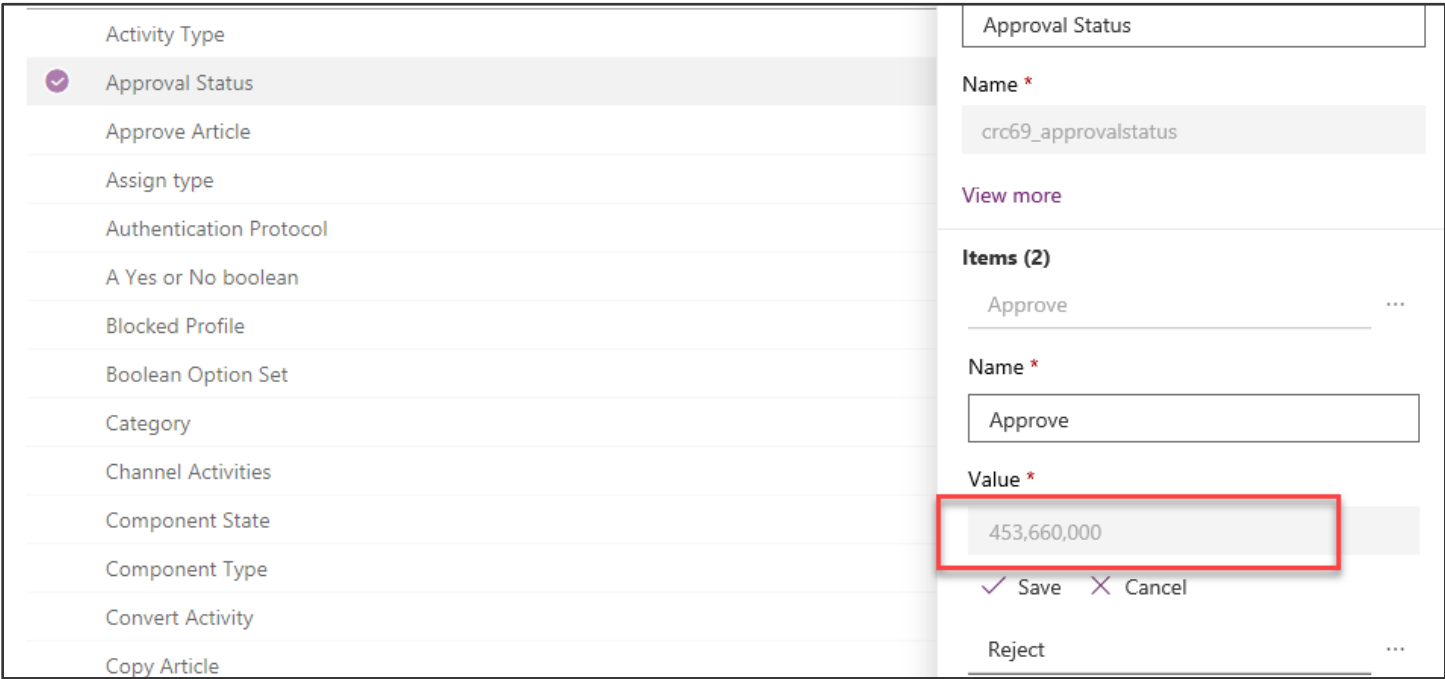
2. Select Option Sets and click on the Approval Status.



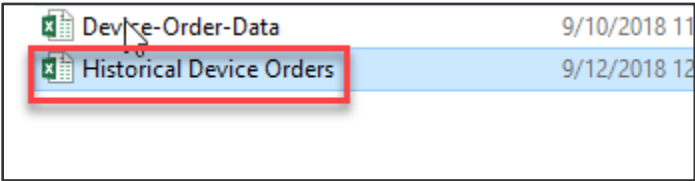
3. Click the ... button of the Approve option and select View More.



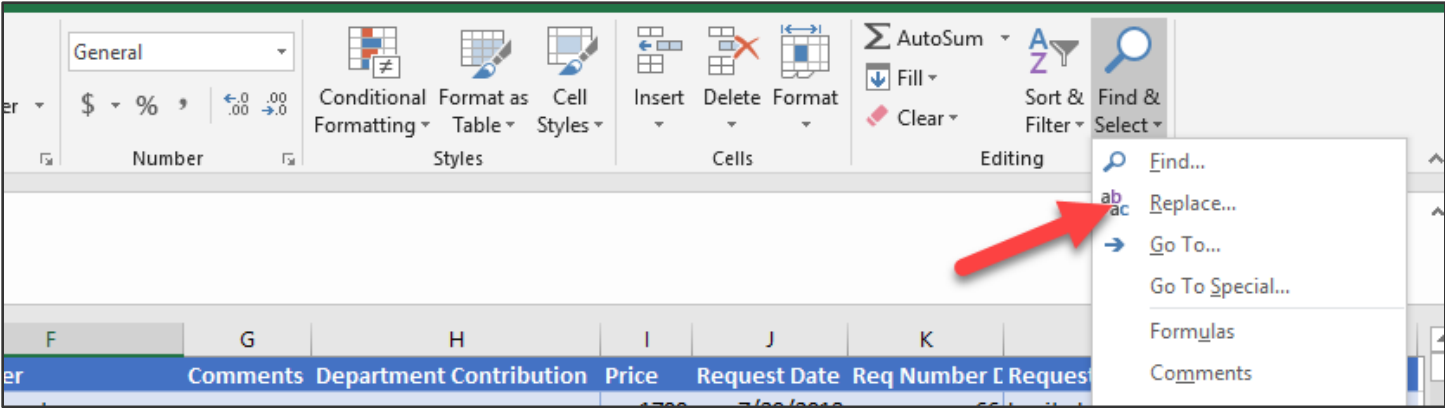
4. Copy the Value.



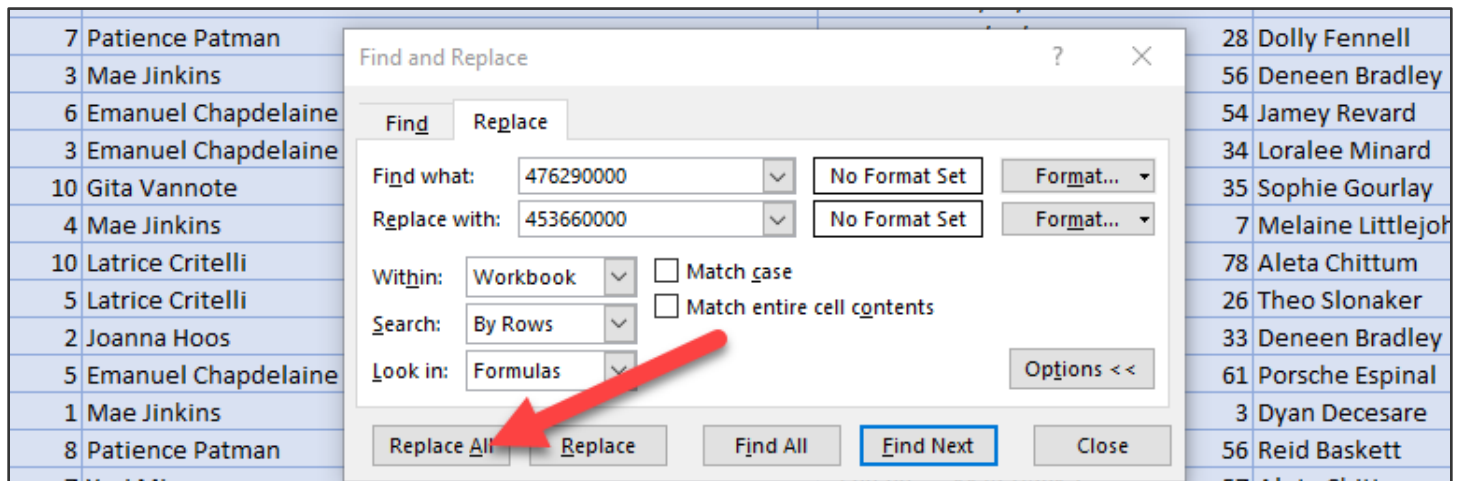
5. Go to the resources folder of the module and open the Historical Device Order Excel file



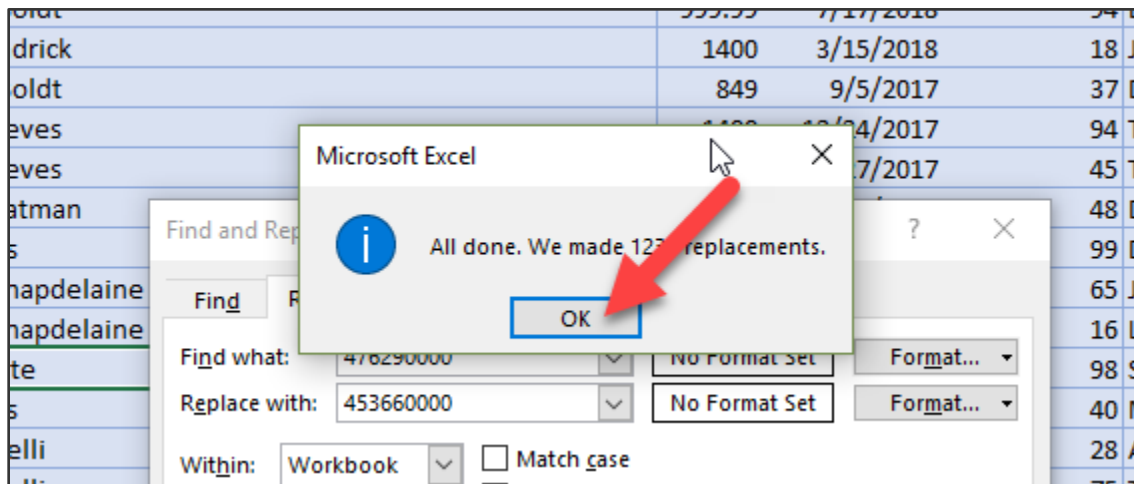
6. Click Find and select Replace.



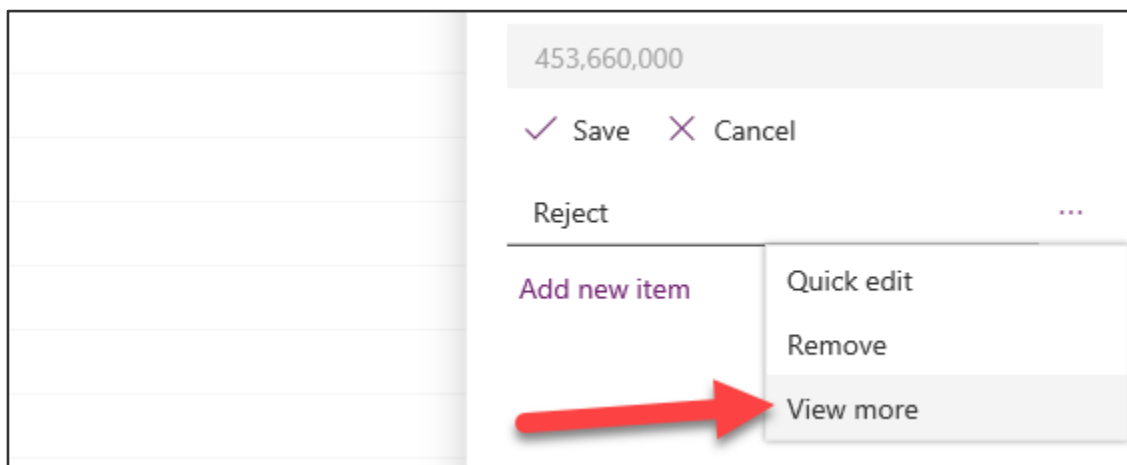
7. Enter 476290000 for Find, type the Value you copied (without the commas) in the Replace field, and click Replace All.



8. Click OK.



9. Go back to PowerApps, click on the ellipses button of the Reject option, and select View More.



10. Copy the Value again.

✓ Save ✕ Cancel

Reject

Name *

Reject

Value *

453,660,001

✓ Save ✕ Cancel

[Add new item](#)

11. Go back to the Excel file, type 476290001 on the find field, the value you copied (without the commas) in the replace field, and click Replace All.

Find and Replace

Find Replace

Find what: 476290001 No Format Set Format...

Replace with: 453660001 No Format Set Format...

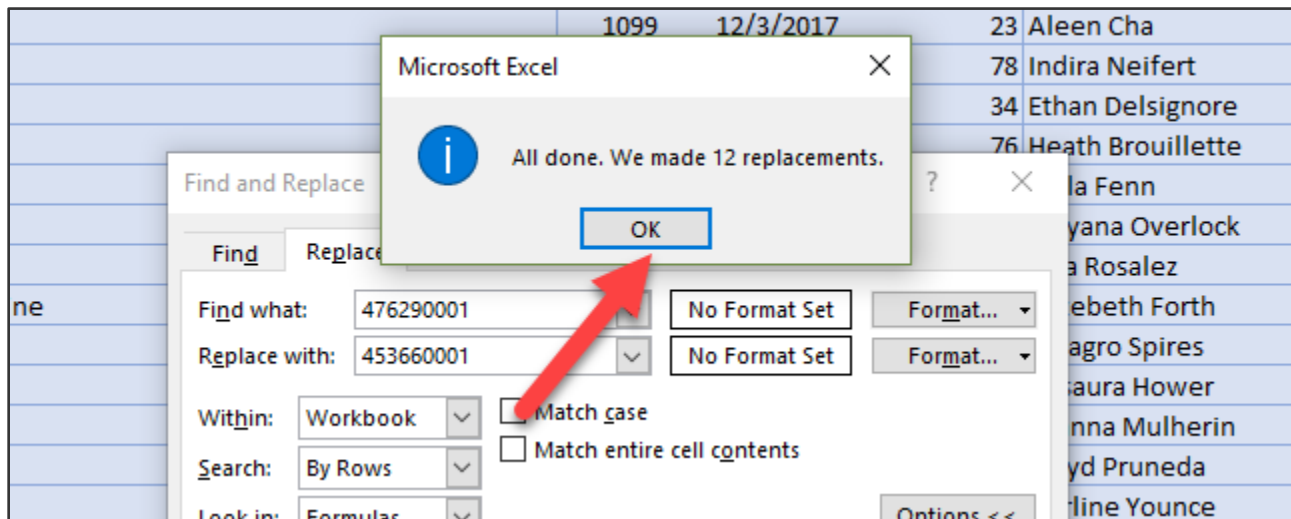
Within: Workbook Match case

Search: By Rows Match entire cell contents

Look in: Formulas Options <<

Replace All Replace Find All Find Next Close

12. Click Ok.



13. Close the Find and Replace dialog.

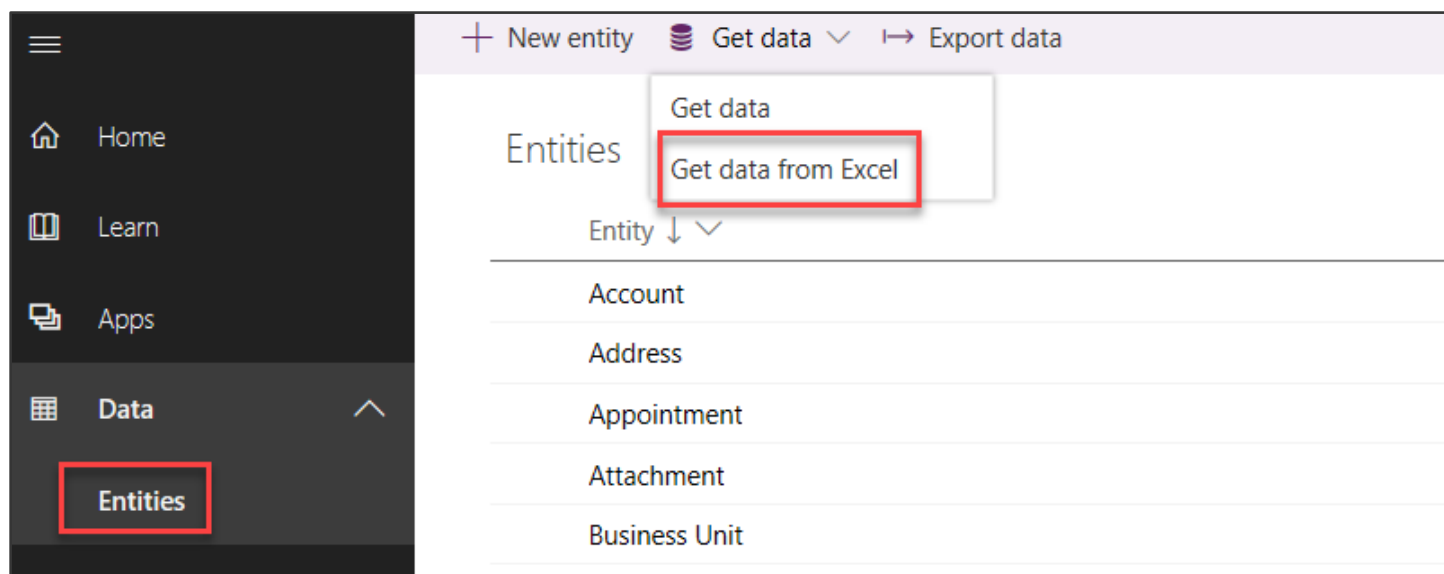
14. Save the Excel file and close it.

Note: The reason we are doing this is due to each environment having a unique publisher prefix, when you created your solution the values of the option set are prefixed based on that value. Currently the import process we are going to use requires the numeric value and not the label value so it must be adjusted.

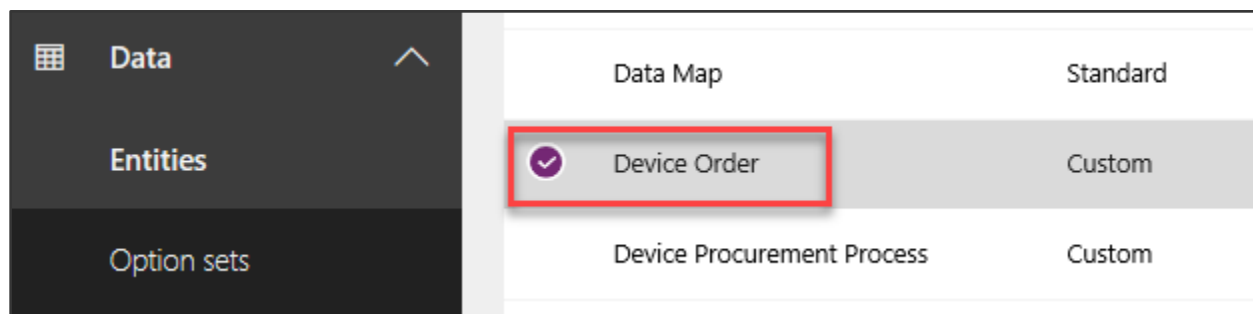
15. Go back to the PowerApps and close the Option Set edit window.



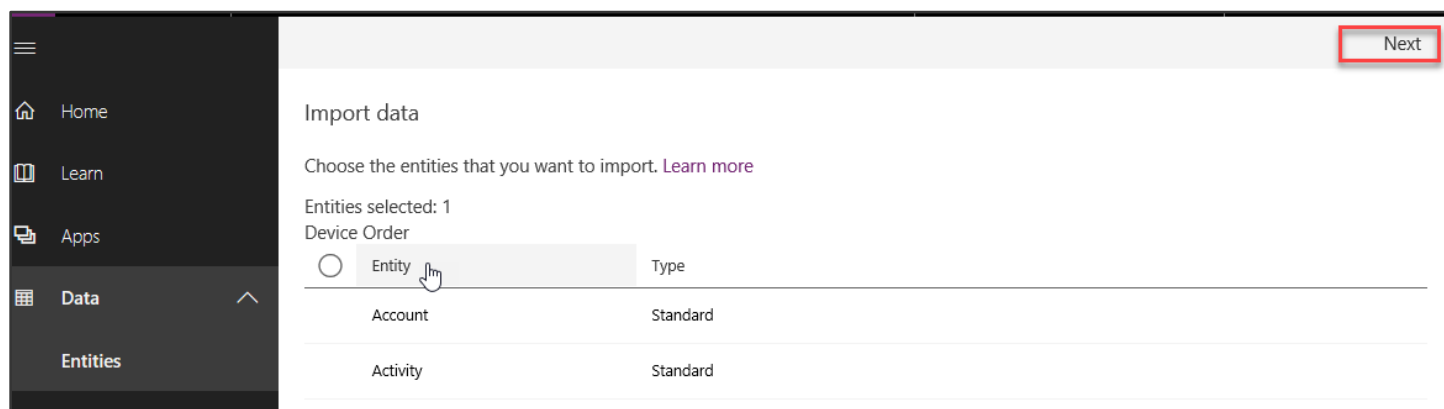
16. There are many options available to get data into CDS. We are going to import from an Excel file. Select **Entities** click **Get Data** and select **Get Data From Excel**.



17. Scroll down the list of entities and choose **Device Orders**



18. Scroll back up and in the upper right corner click **Next**





19. Click Upload to open the file browser

Import data

Choose the file you want imported for each entity, and we'll map the fields that match. [Learn more](#)

Name	File	Mapping status
Device Order	File not uploaded ⬆️ Upload	Not mapped

20. Select the Historical Device Orders Excel file.

 Device-Order-Data	9/10/2018 11
 Historical Device Orders	9/12/2018 12

21. After the file upload is complete it will show mapping errors, Click **Map fields**

Import data

Choose the file you want imported for each entity, and we'll map the fields that match. [Learn more](#)

Name	File	Mapping status
Device Order	Historical Device Orde... ⬆️ Upload	❗ Mapping errors exist ✎ Map fields

22. Map the following fields

Device Order fields	Source values
Approval Status Value	Approval Status
Approval Date	Approval Date
Approver	Approver
Comments	Comments
Device Name	Device Name
Price	Price
Process ID	Select None to un map
Request Date	Request Date
Request By	Request By

23. Change the Show: dropdown to Mapped fields to show only the fields you have mapped. Confirm your list matches the list show in the image.

Field mappings for Device Order

Filter by entity field name: Show: Entity field filter has been applied

Device Order fields	Source values
Approval Status Value	Approval Status
Approved Date	Approved Date
Approver	Approver
Comments	Comments
Device Name *	Device Name
Price	Price
Request Date	Request Date
Requested By	Requested By

24. Confirm that Process Id is not mapped to Approved Date, if it is then un map it by selecting None.

Import Sequence Number	Not set
Owning Business Unit	Not set
Price (Base)	Not set
Process Id	Not set
Send Survey	Not set
Stage Id	Not set

25. Click **Save changes** to proceed. You may still have an Error and a Warning that is ok

Cancel **Save changes**

Field mappings for Device Order

Filter by entity field name: Show: Entity field filter has been applied

Device Order fields	Source values
Approved Date	Approved Date

26. Click Import to begin the import of the historical data

Import

Import data

Choose the file you want imported for each entity, and we'll map the fields that match. [Learn more](#)

Name	File	Mapping status
Device Order	<div>Historical Device Orde...</div> <div>Upload</div>	<div>Mapping warnings exist</div> <div>Map fields</div>

27. This should take a couple of minutes to complete – while processing you should see the following

Import data

Importing your data...

28. Once the import has completed you should see the following

Import data

Device Order

Inserts and updates:
1245

29. If for some reason the import wasn't successful, download the log file and review. Most common cause is an improper mapping of a field type. If that happens just start this task again as it doesn't retain your mappings.

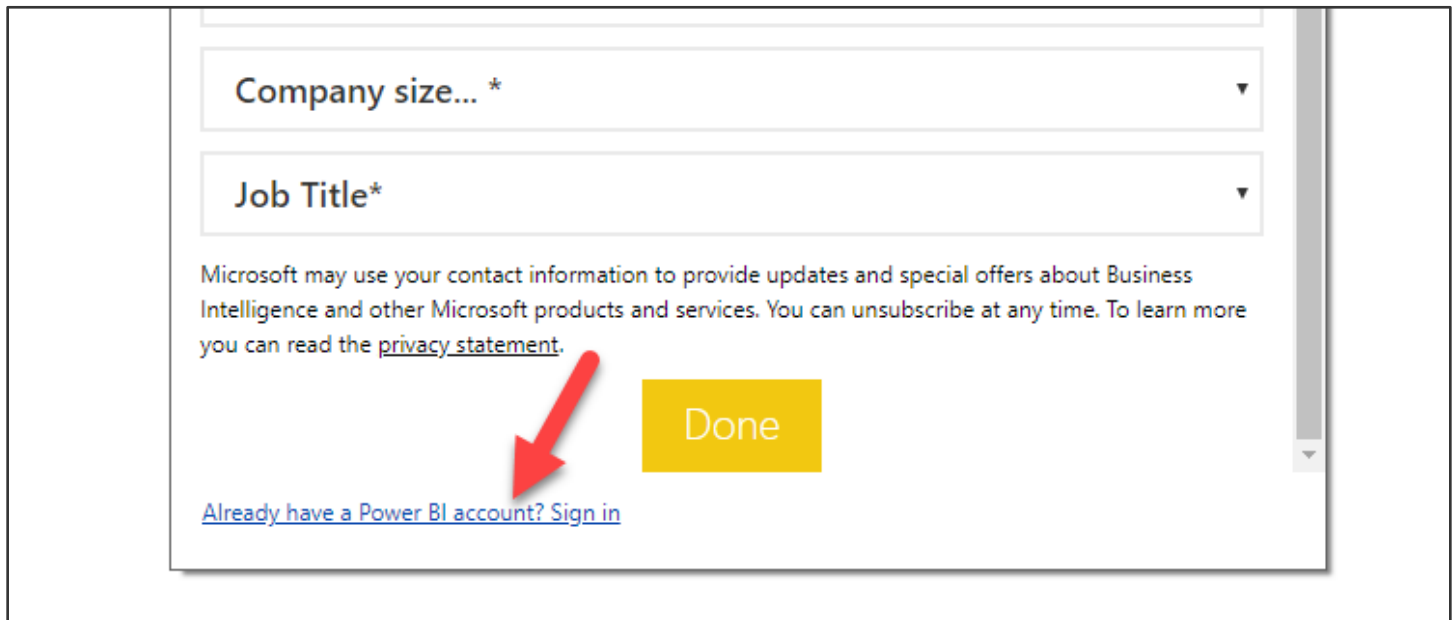
Exercise 3: Connect and reference data

In this exercise, you will connect to the Common Data Service using a connector. You will then be referencing the data from the device procurement process that you will use to build the visualizations. This includes selecting only the data that is useful to help have a easy to use data set to work with.

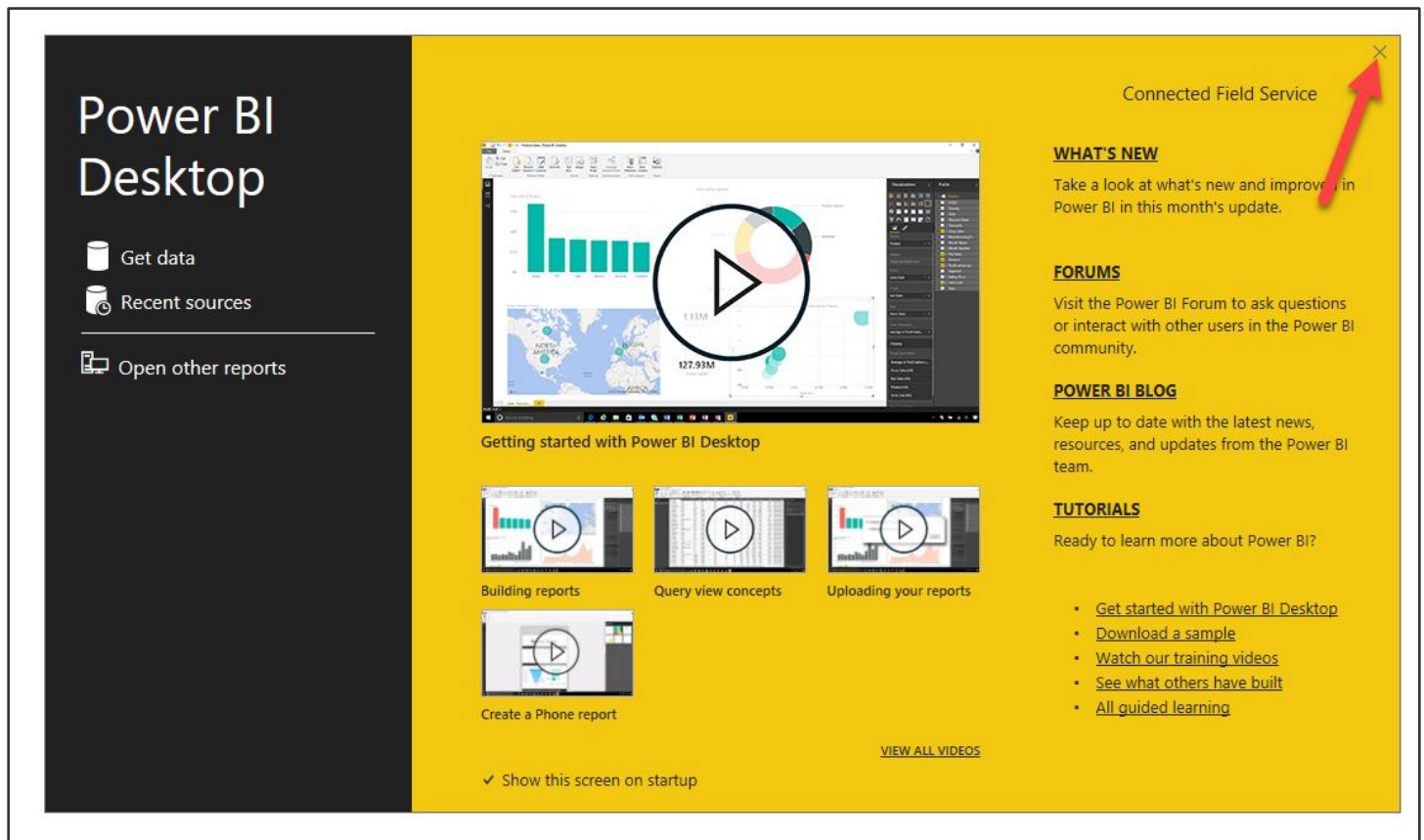
Task 1: Connect Power BI to the CDS Data

In this task, you will get data from your Common Data Service.

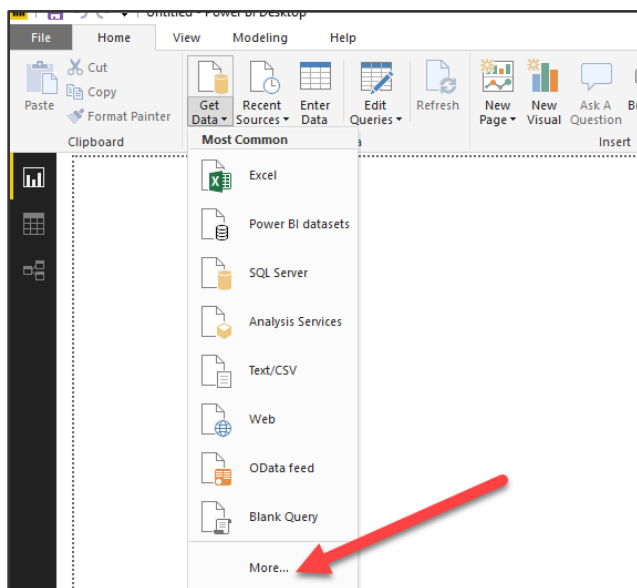
1. Start Power BI Desktop application and click Sign in.



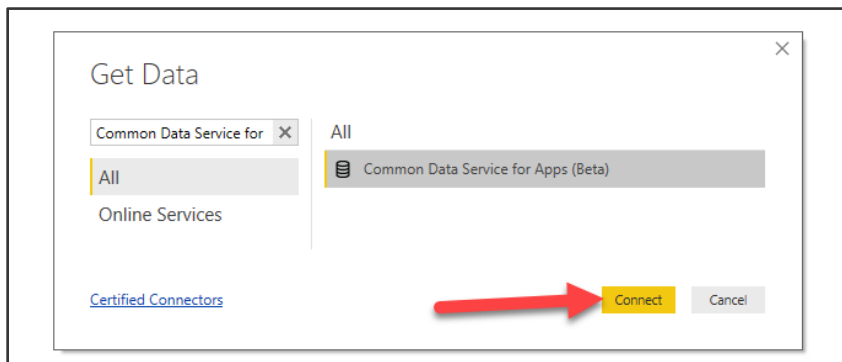
2. Provide your credentials and sign in.
3. Close the splash screen.



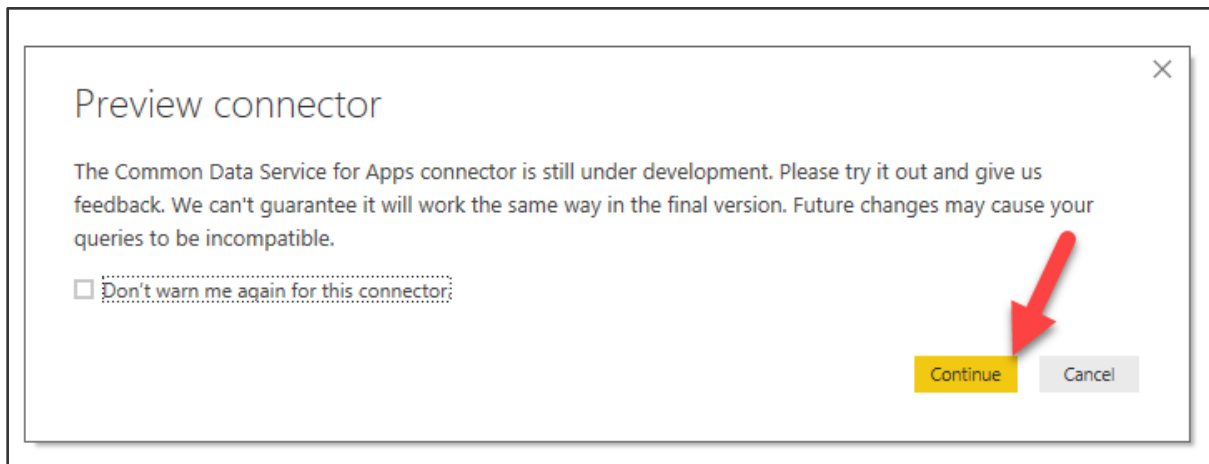
4. Click Get Data and select More...



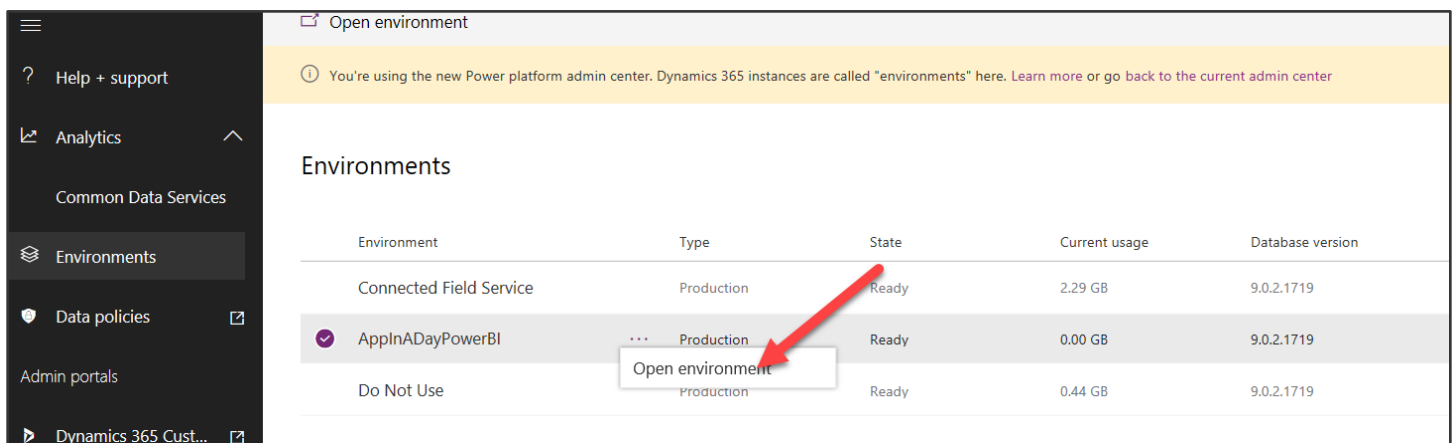
5. Search for Common Data Service for Apps, select it, and click Connect.



6. Continue past the connector Preview warning.



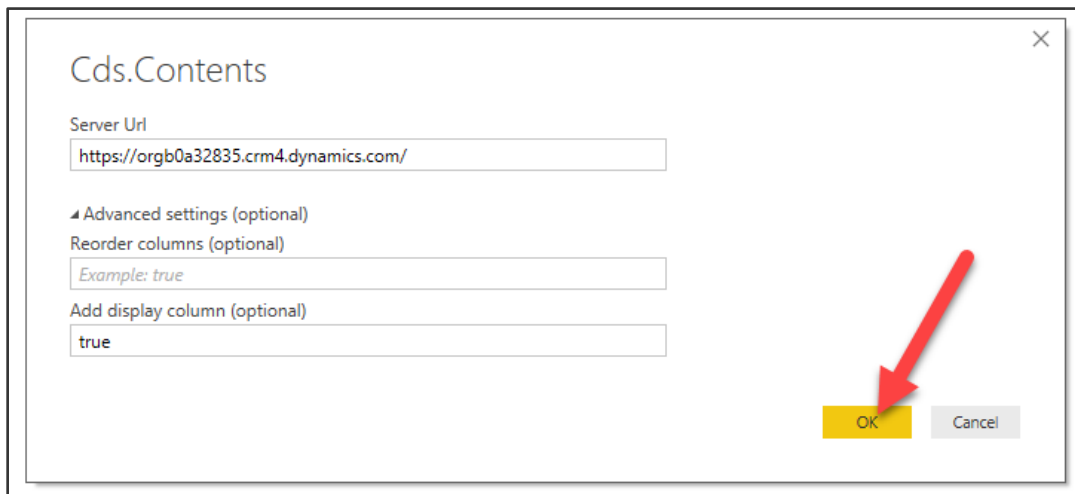
7. Navigate to <https://admin.powerplatform.microsoft.com/> and select Environments.
 8. Select your environment, click on the ellipses button, and click Open Environment.



9. Copy the base part of the URL

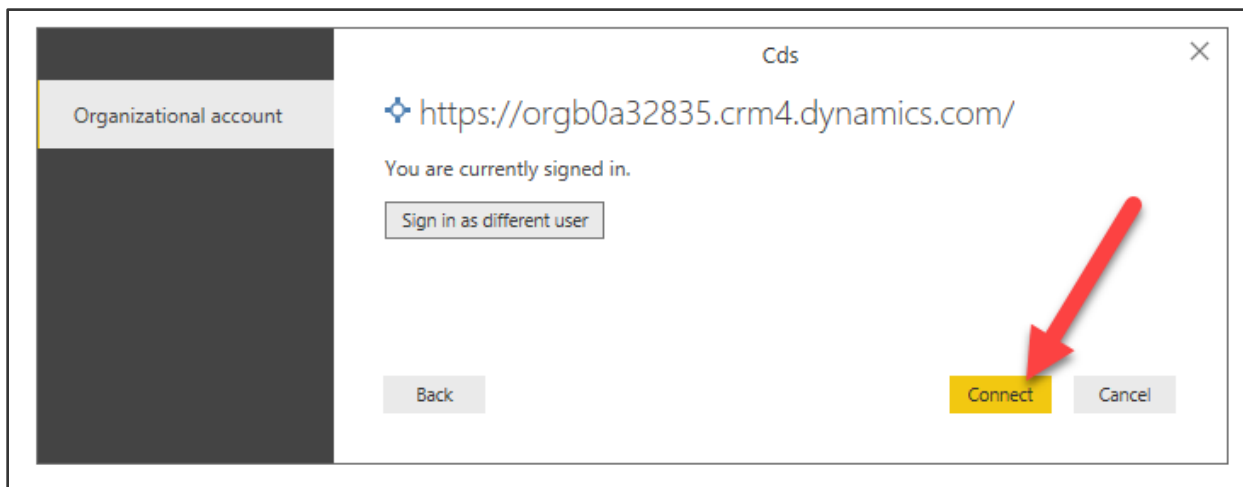


10. Go back to Power BI Desktop, paste the URL you copied into the Server URL field, type true in the Add Display Column field, and click OK.

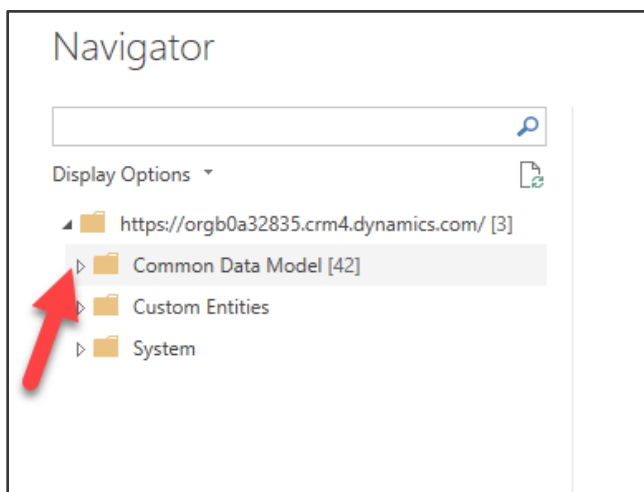


11. If you are prompted to sign in, click Sign in and provide your credentials.

12. Click Connect.



13. Expand **Common Data Model**.



14. Select **SystemUser**

The screenshot shows the Power Platform Navigator interface. On the left, under 'Display Options', the 'SystemUser' entity is selected with a checkmark. The main pane displays the 'SystemUser' entity data in a table format.

accessmode	accessmode_display	address1_addressid	address1
3	Support User	421277c2-cba7-4242-a80c-605299bb91e7	
5	Delegated Admin	f574bd17-9e56-4114-9560-ab42c960b5fa	
4	Non-interactive	4bbbce2f-517d-4dc7-a37f-f0e7cabb869f	

A message below the table states: "The data in the preview has been truncated due to size limits."

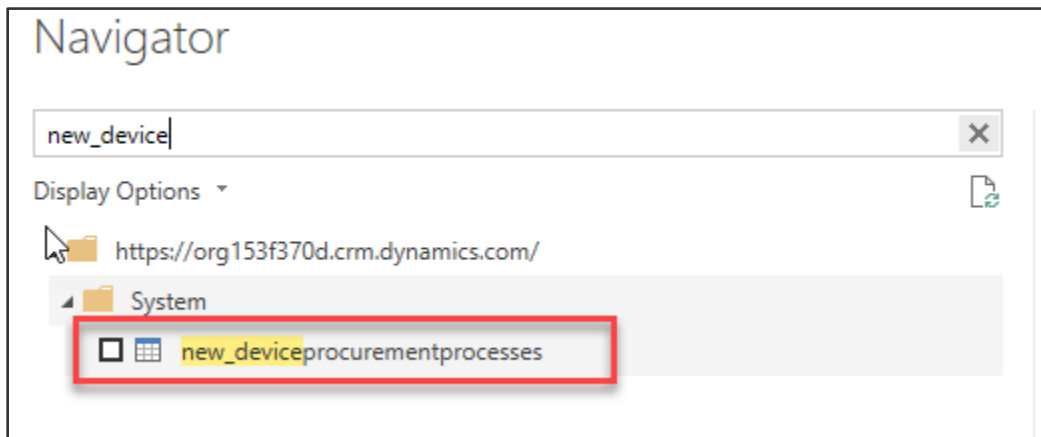
15. Expand **Custom Entities** and select **DeviceOrder**. Note: it will be in the format of <prefix>_DeviceOrder where the prefix will be different in each environment.

The screenshot shows the Power Platform Navigator interface. On the left, under 'Custom Entities', the 'crc69_DeviceOrder' entity is selected with a checkmark. The main pane displays the 'crc69_DeviceOrder' entity data in a table format.

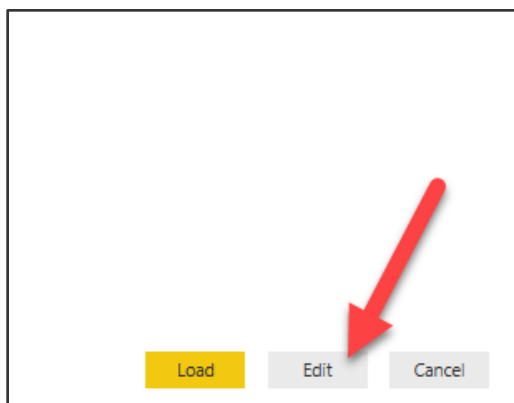
crc69_approvalstatus	crc69_approvalstatus_display	crc69_approveddate
null	null	nu
null	null	nu
null	null	nu
453660000	Approve	7/3/2018 6:00:00 AM +00:00
453660000	Approve	1/20/2018 7:00:00 AM +00:00
453660000	Approve	4/1/2018 6:00:00 AM +00:00
453660000	Approve	7/28/2018 6:00:00 AM +00:00
453660000	Approve	1/6/2018 7:00:00 AM +00:00
453660000	Approve	3/29/2018 6:00:00 AM +00:00
453660000	Approve	4/7/2018 6:00:00 AM +00:00
453660000	Approve	6/18/2018 6:00:00 AM +00:00

A message below the table states: "The data in the preview has been truncated due to size limits."

16. Expand **System** and select **new_DeviceProcurementProcesses**.



17. Click Edit.



18. Your data will now be available in the Power Query Editor.

File

Home

Transform

Add Column

View

Help

Close & Apply

Close

New Source

New Query

Recent Sources

Enter Data

Data source settings

Data Sources

Manage Parameters

Parameters

Refresh Preview

Advanced Editor

Manage

Query

Choose Columns

Remove Columns

Manage Columns

Keep Rows

Remove Rows

Reduce Rows

Sort

Split Column

Group By

Replace Values

Transform

Data Type: Whole Number

Use First Row as Headers

Merge Queries

Append Queries

Combine Files

Combine

Queries [3]

t₂ bpf_duration

A_C _createdonbehalby_value

t₂ timezoneruleversionnumber

A_C bpf_name

A_C traversedpath

t₂ versionnumber

A_C _createdby_value

1

null

null

0

Device Procurement Process

712aa0fb-11fd-494a-bc5e-f79ec4e95ac9

455380

S3881d30-d627-4ebd-9f39-2bd67e!

2

null

null

0

Device Procurement Process

712aa0fb-11fd-494a-bc5e-f79ec4e95ac9

455383

S3881d30-d627-4ebd-9f39-2bd67e!

3

null

null

0

Device Procurement Process

712aa0fb-11fd-494a-bc5e-f79ec4e95ac9

455386

S3881d30-d627-4ebd-9f39-2bd67e!

4

null

null

0

Device Procurement Process

712aa0fb-11fd-494a-bc5e-f79ec4e95ac9

455389

S3881d30-d627-4ebd-9f39-2bd67e!

5

null

null

0

Device Procurement Process

712aa0fb-11fd-494a-bc5e-f79ec4e95ac9

455392

S3881d30-d627-4ebd-9f39-2bd67e!

6

null

null

0

Device Procurement Process

712aa0fb-11fd-494a-bc5e-f79ec4e95ac9

455395

S3881d30-d627-4ebd-9f39-2bd67e!

7

null

null

0

Device Procurement Process

712aa0fb-11fd-494a-bc5e-f79ec4e95ac9

455398

S3881d30-d627-4ebd-9f39-2bd67e!

8

null

null

0

Device Procurement Process

712aa0fb-11fd-494a-bc5e-f79ec4e95ac9

455401

S3881d30-d627-4ebd-9f39-2bd67e!

9

null

null

0

Device Procurement Process

712aa0fb-11fd-494a-bc5e-f79ec4e95ac9

455404

S3881d30-d627-4ebd-9f39-2bd67e!

10

null

null

0

Device Procurement Process

712aa0fb-11fd-494a-bc5e-f79ec4e95ac9

455407

S3881d30-d627-4ebd-9f39-2bd67e!

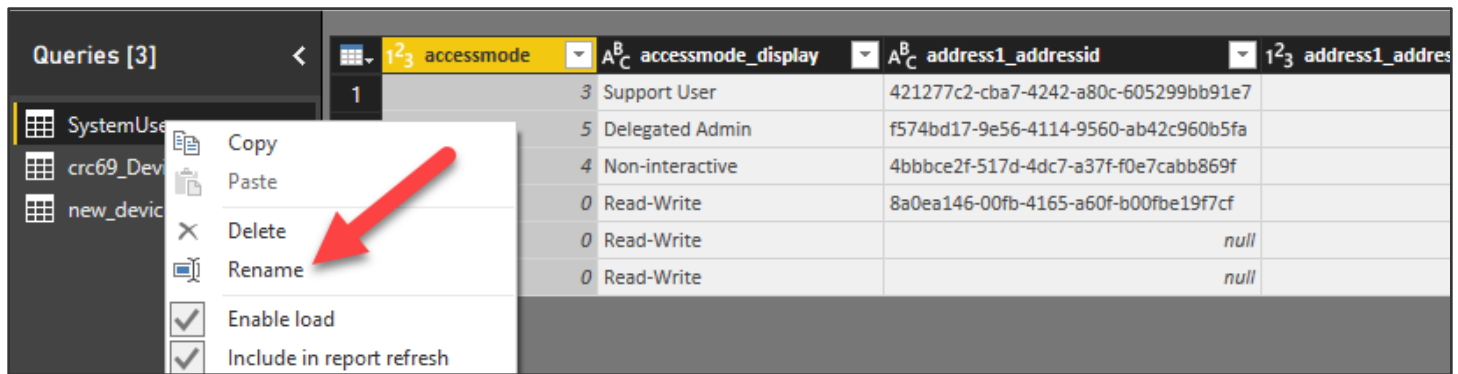
SystemUser

crc69_DeviceOrder

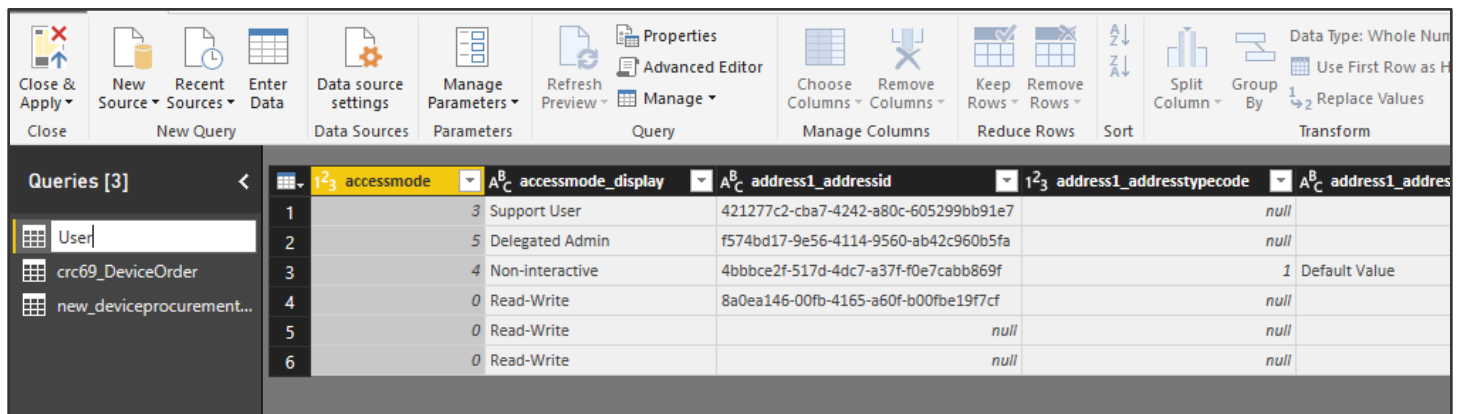
new_deviceprocurement...

Task 2: Clean up and Transform

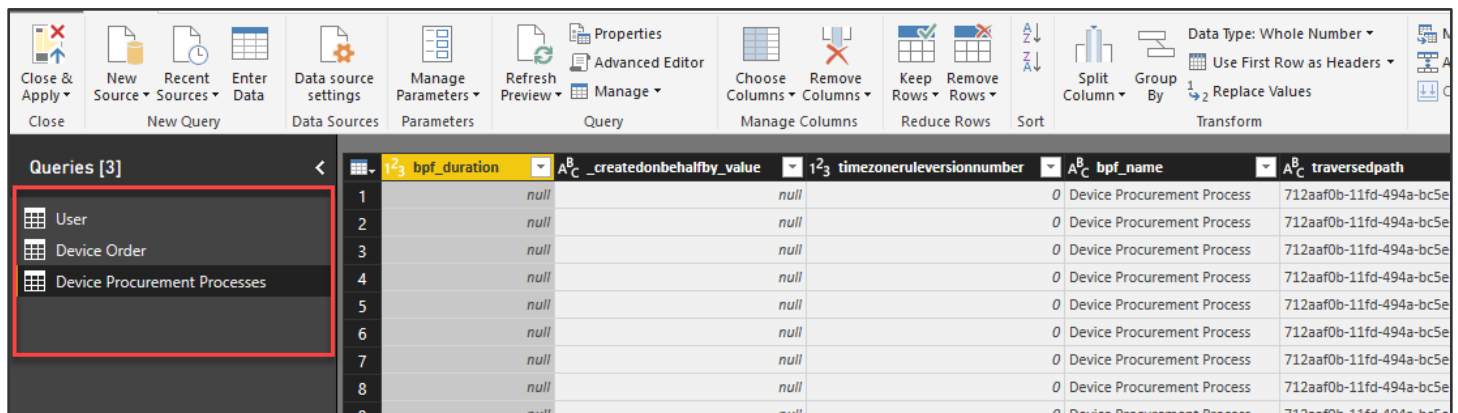
1. Right click on the System User table and click Rename.



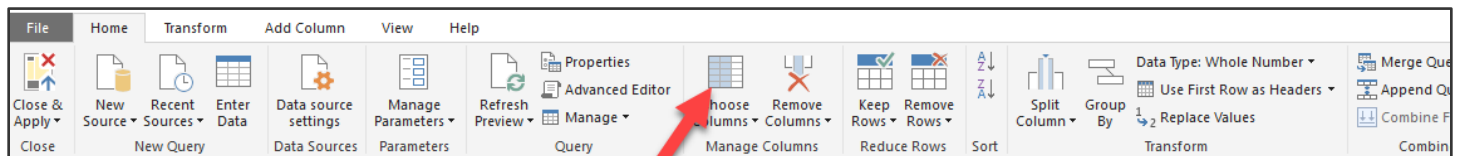
- Rename the table from SystemUser to User.



- Rename the DeviceOrder table to Device Order and the DeviceProcurementProcesses to Device Procurement Processes. Your table names will now look like the image below.

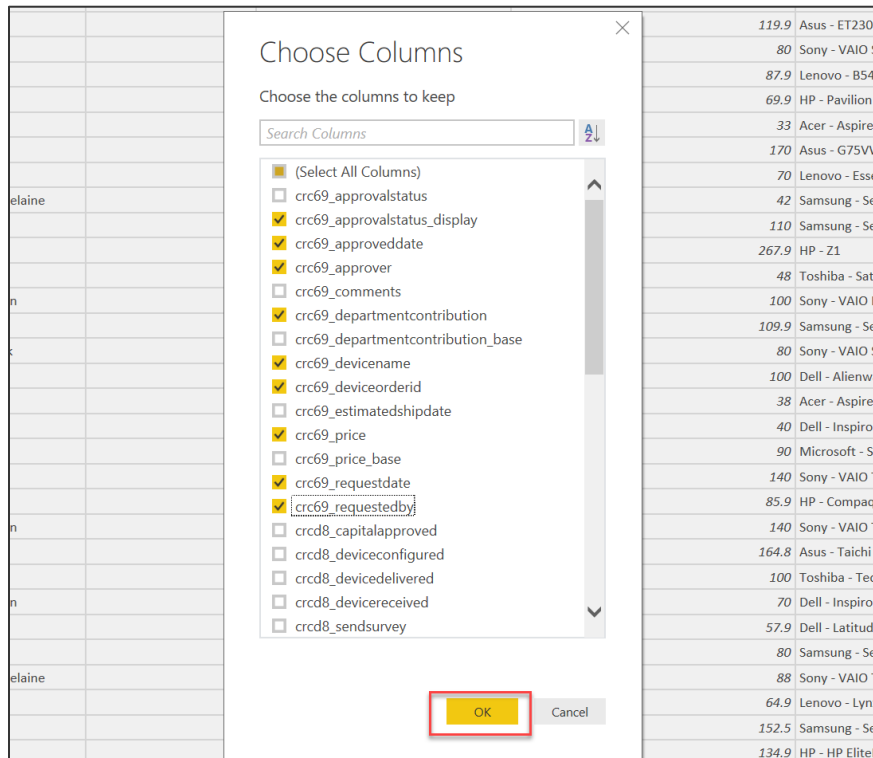


- Next, we are going to remove columns from our query on the Device Order entity to make it fewer columns we need to work with.
- Select the Device Order table and click Choose Columns. Alternatively, you can also select the column header in the grid while holding the Ctrl key and then select the columns, then right-click and select Remove Other columns.

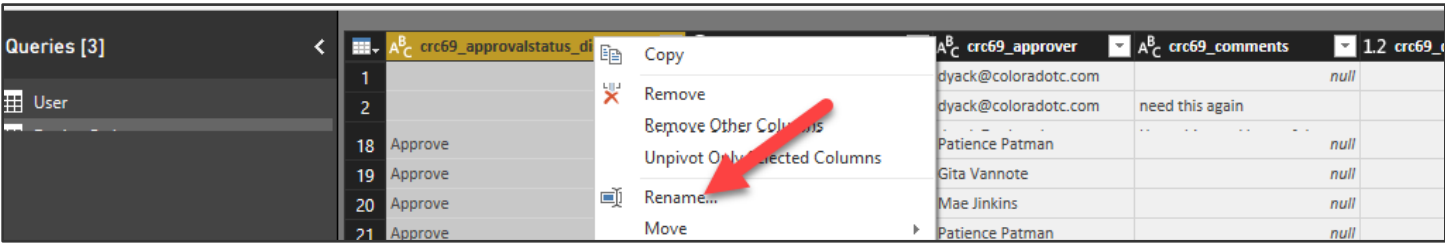


1	2	3	4	5	6	7
	crc69_approvalstatus	A ^B C crc69_approvalstatus_display		crc69_approveddate	A ^B C crc69_approver	A ^B C crc69_comments
1		null		null	dyack@coloradotc.com	null
2		null		null	dyack@coloradotc.com	need this again
3		null		null	dyack@coloradotc.com	Hey - this good be useful
4	453660000	Approve		7/3/2018 6:00:00 AM +00:00	Gita Vannote	null
5	453660000	Approve		1/20/2018 7:00:00 AM +00:00	Latrice Critelli	null
6	453660000	Approve		4/1/2018 6:00:00 AM +00:00	Yuri Mignone	null
7	453660000	Approve		7/28/2018 6:00:00 AM +00:00	Patricia Reeves	Need it

6. Un check the select all columns
7. Select the columns listed below and click OK. Note: the action names will be in the format of <prefix>_<name>.
The following are the names
Approvalstatus_display
Approveddate
Approver
Departmentcontribution
Devicename
Deviceorderid
Price
Requesteddate
Requestedby



8. Right click on the Approvalstatus_display and click Rename.



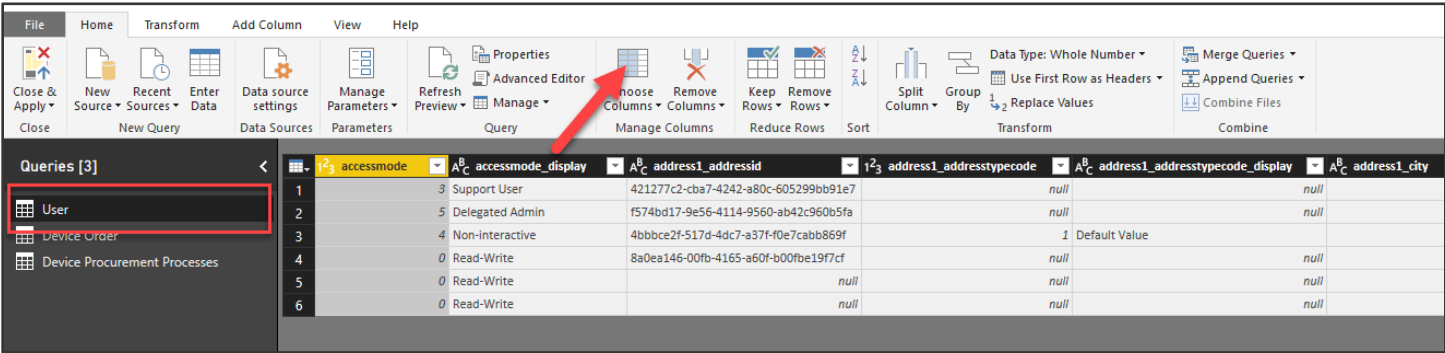
9. Rename the column Approval Status.

The screenshot shows the Power BI Desktop interface with the table 'User'. The columns are: 'Approval Status', 'crc69_approveddate', 'crc69_approver', 'crc69_comments', and 'crc69_departmentcontribution'. The data rows show various approval statuses and dates.

10. Rename the rest of the columns as shown below. You may rename other fields if you have time but not required for the lab.

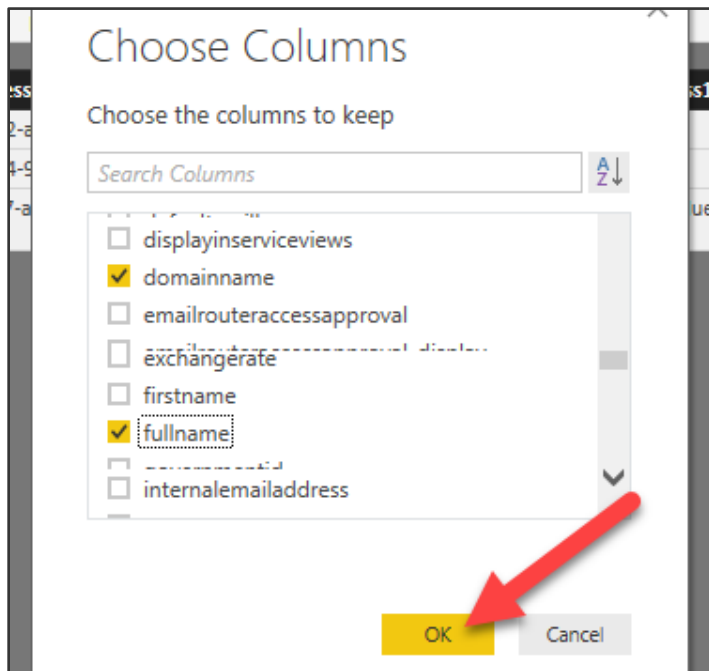
Current Name	New Name
approveddate	Approved Date
approver	Approver
departmentcontribution	Department Contribution
devicename	Device Name
deviceorderid	Device Order
price	Price
requestdate	Requested Date
requestedby	Requested By

11. Select the User table and click Choose Columns.



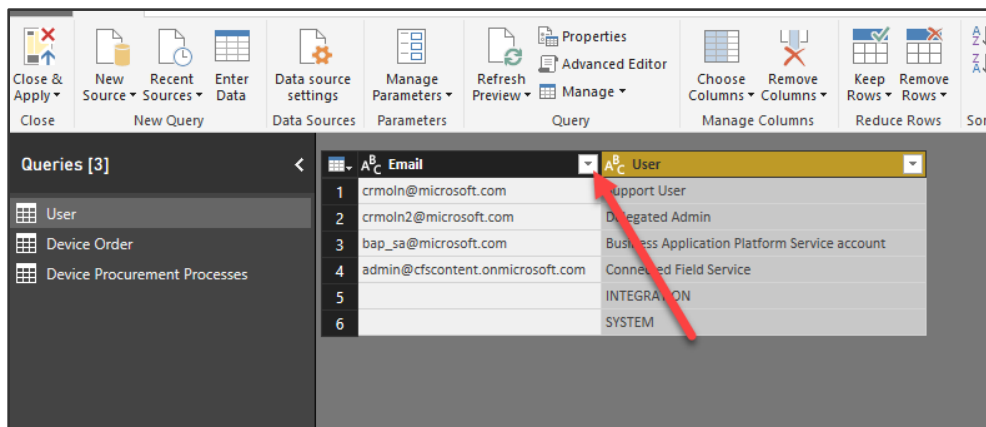
12. Uncheck Select All Columns

13. Select domainname, fullname and click OK. Tip: Using Search can speed up finding the columns.

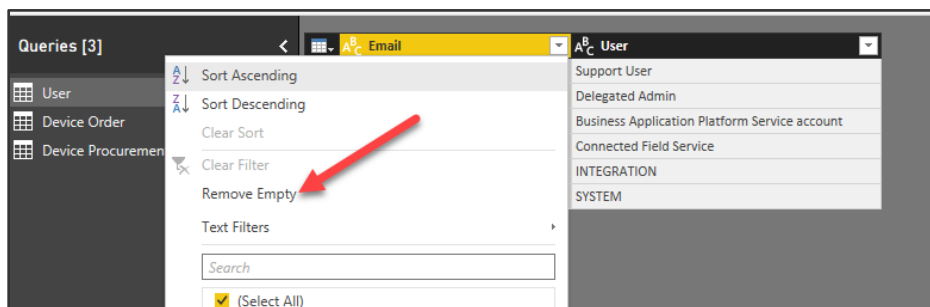


14. Rename the domainname column Email and the fullname column User.

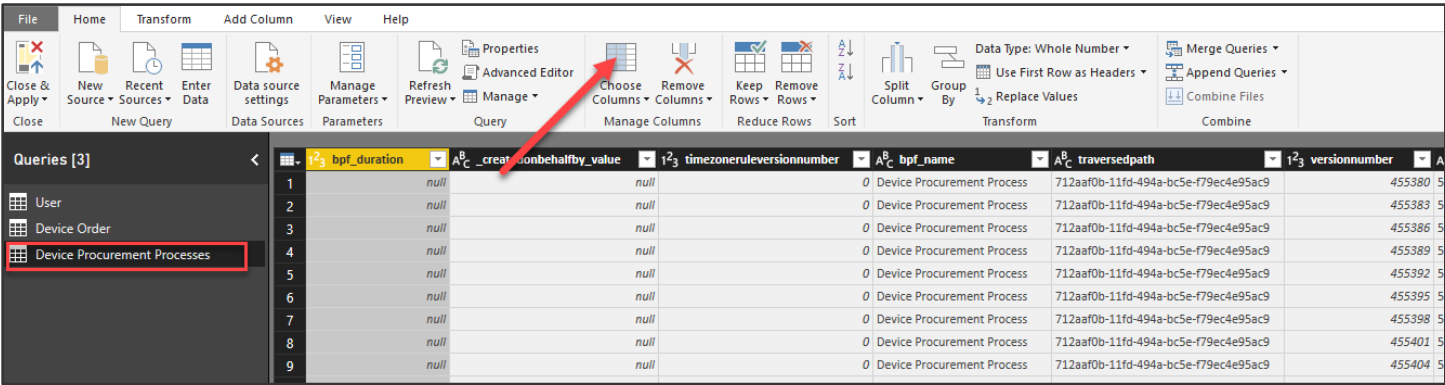
15. Click Sort on the Email column.



16. Click Remove Empty.



17. Select the Device Procurement Process table and click Choose Columns.



18. Uncheck the Select All Columns

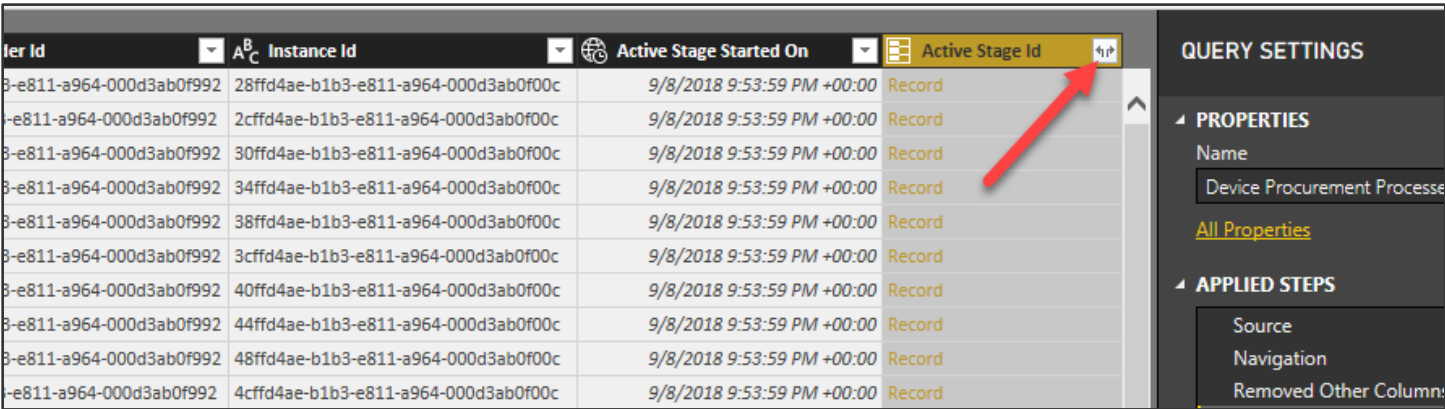
19. Select the columns listed below and click OK.

- Bpf_name
- _processid_value
- Completedon
- Businessprocessflowinstanceid
- _bpf_CRC69_deviceorderid_value (Note: the CRC69 might be different in your list)
- Activestageid

20. Rename the fields as shown below. You may rename the other fields.

Current Name	New Name
Bpf_name	Name
_processid_value	Process
Businessprocessflowinstanceid	Device Procurement Process
_bpf_CRC69_deviceorderid_value (Note: the CRC69 might be different in your list)	Device Order
Activestageid	Active Stage Id

21. Expand the Active Stage column. This will allow us to select one or more values from the related entity.



22. Select stagename and click OK.

Search Columns to Expand

- (Select All Columns)
- ☐ versionnumber
- ☐ processstageid
- ☒ stagename
- ☐ _processid_value
- ☐ owningbusinessunit
- ☐ processstage_teams
- ☐ ProcessStage_SyncErrors

☒ Use original column name as prefix

OK Cancel

23. Rename the column to Active Stage.

QUERY SETTINGS

PROPERTIES

Name

Device Procurement Process

All Properties

APPLIED STEPS

Source

Navigation

Removed Other Column

Renamed Columns

Task 3: Add Device Manufacturer Data

1. Select the Home tab, click New Source, and select Excel.

File Home Transform Add Column View Help

Close & Apply Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor Manage Columns Remove Columns Keep Rows Remove Rows Split Column Group By Data Type: Text Use First Row as Headers Replace Values Transform

Queries

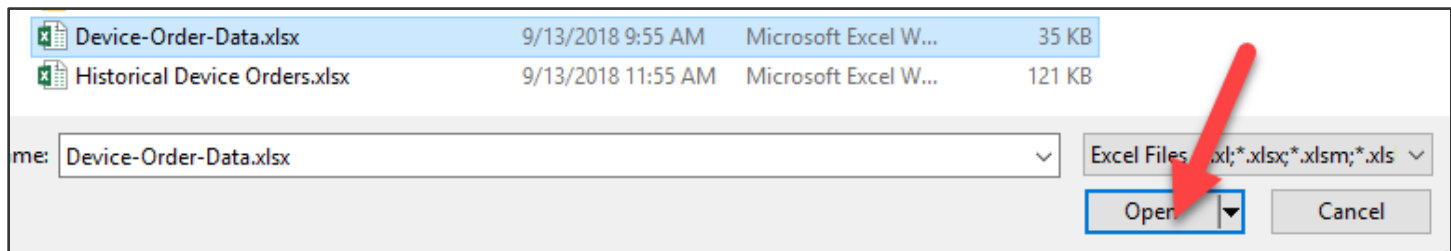
Excel

SQL Server

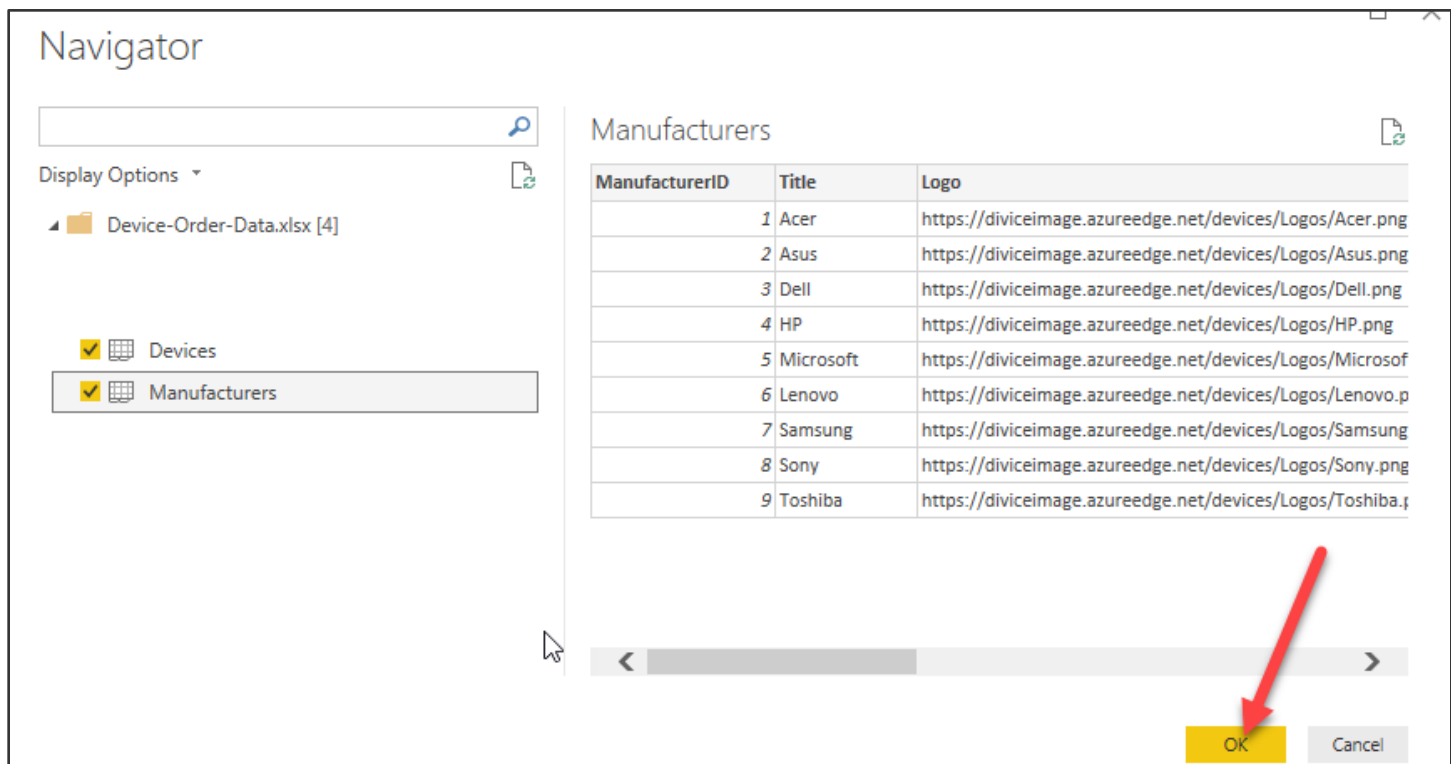
Analysis Services

Text/CSV

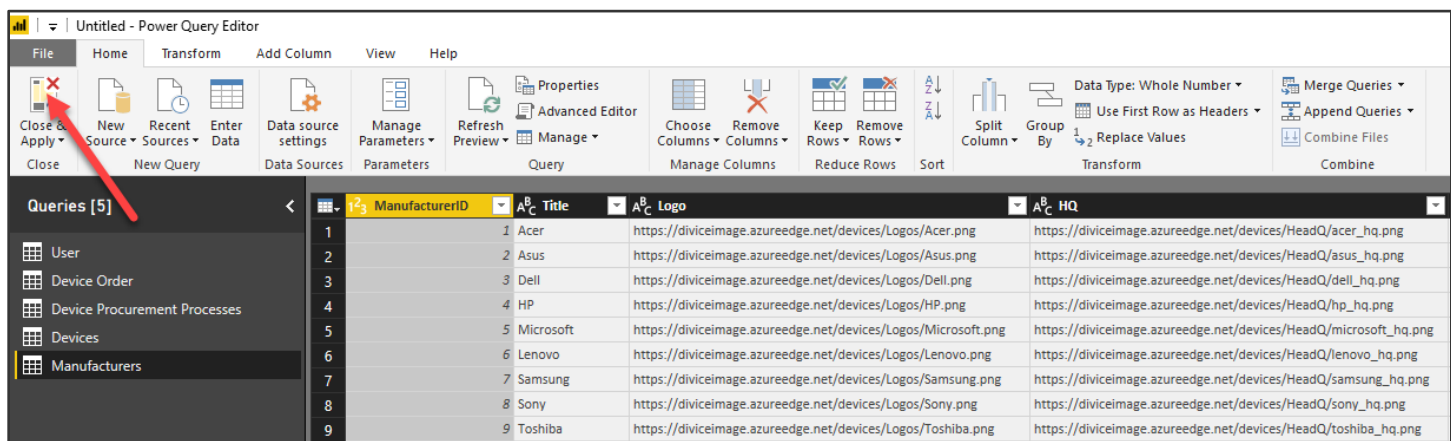
2. Select the Device Manufacturer Data (**Device Order Data.xlsx**) file provided to you and click Open.



3. Select the **Devices** and **Manufacturers** tables and click OK.

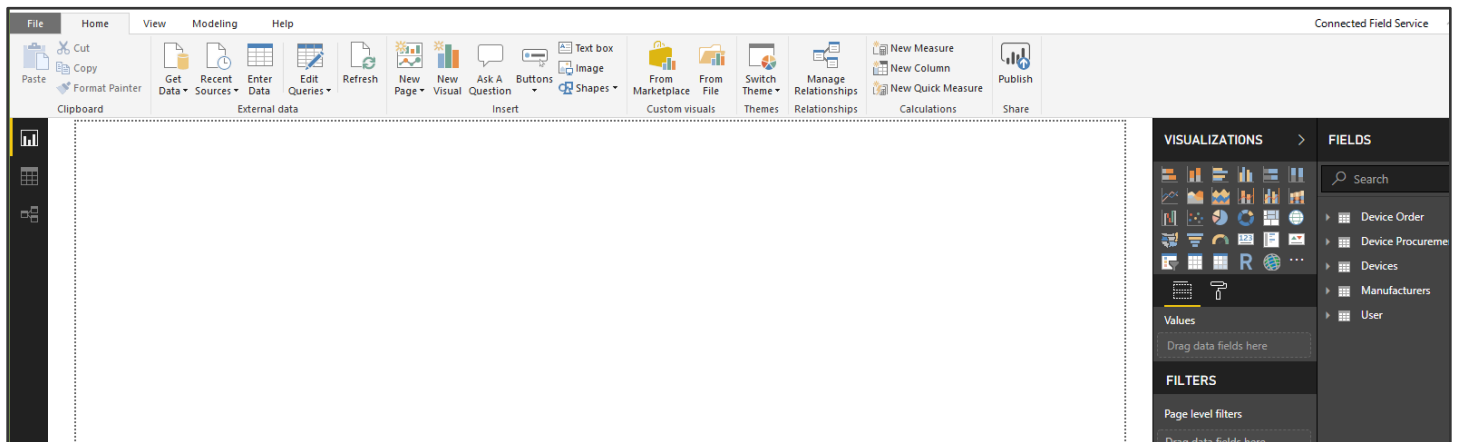


4. Click Close and Apply.



Note: Power Query has a lot of powerful transformations that can be done including trimming, replacing values, transpose, change data type, and many more. Each of these transformations are built as an M query that is applied each time you refresh the data. You can see the query that is built by clicking on the Advanced Editor button.

5. The Power Query editor will close, and you will be back on the Power BI Desktop.

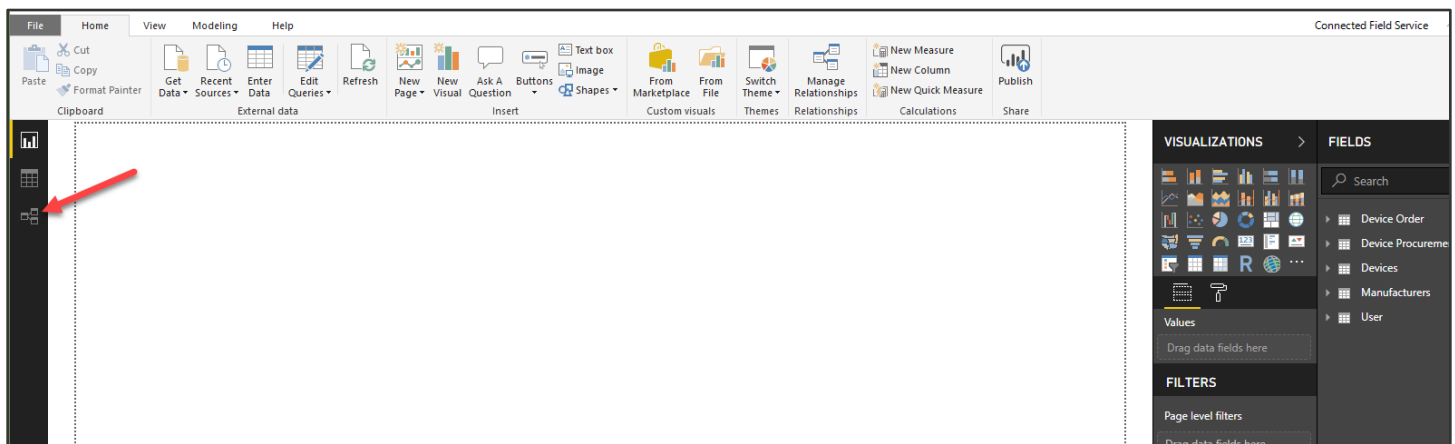


Exercise 4: Setup Relationships and Calculated Columns

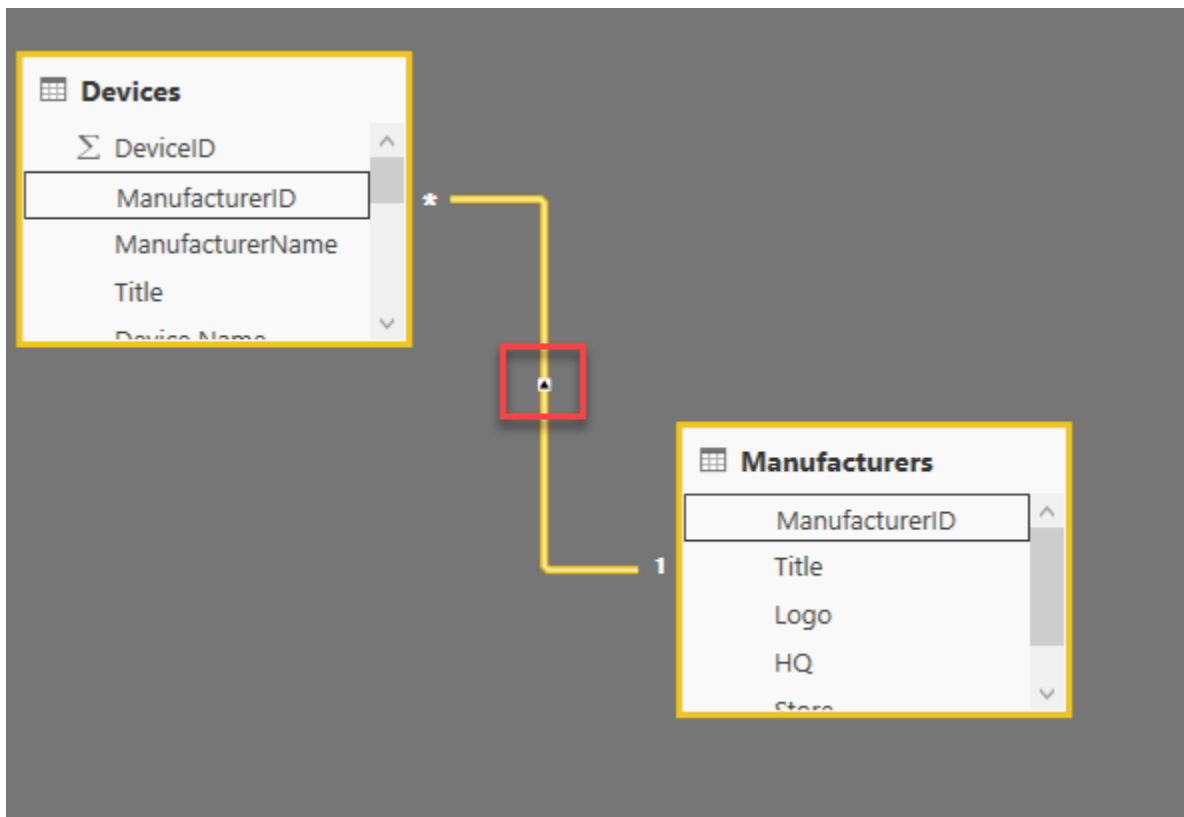
Task 1: Manage Relationships

In this task, you will establish the relationships between the data. You will notice auto detection identifies a couple of relationships within the data. In this task you will be establishing the remaining relationships.

1. Select **Relationships** from the left side navigation.



2. Double click the **Devices to Manufacturers** autodetected relationship and it will load the Edit relationship page. Here you can see the settings on the relationship and make any changes that was required to existing relationships.



3. Click Cancel to close the page.

Edit relationship

Select tables and columns that are related.

Devices

DeviceID	ManufacturerID	ManufacturerName	Title	Device Name	DeviceType	Price	Proc
1	1	Acer	Aspire U	Acer - Aspire U	All in one	1899.99	Intel Core i5-
2	1	Acer	Aspire M	Acer - Aspire M	Ultrabook	699.99	Intel Core i5-
3	1	Acer	Aspire S3	Acer - Aspire S3	Ultrabook	628	Intel Core i3-

Manufacturers

ManufacturerID	Title	Logo	HQ
1	Acer	https://diviceimage.azureedge.net/devices/Logos/Acer...	https://diviceimage.azureedge.net/devi
2	Asus	https://diviceimage.azureedge.net/devices/Logos/Asus...	https://diviceimage.azureedge.net/devi
3	Dell	https://diviceimage.azureedge.net/devices/Logos/Dell....	https://diviceimage.azureedge.net/devi

Cardinality

Many to one (*:1)

Cross filter direction

Single

☒ Make this relationship active

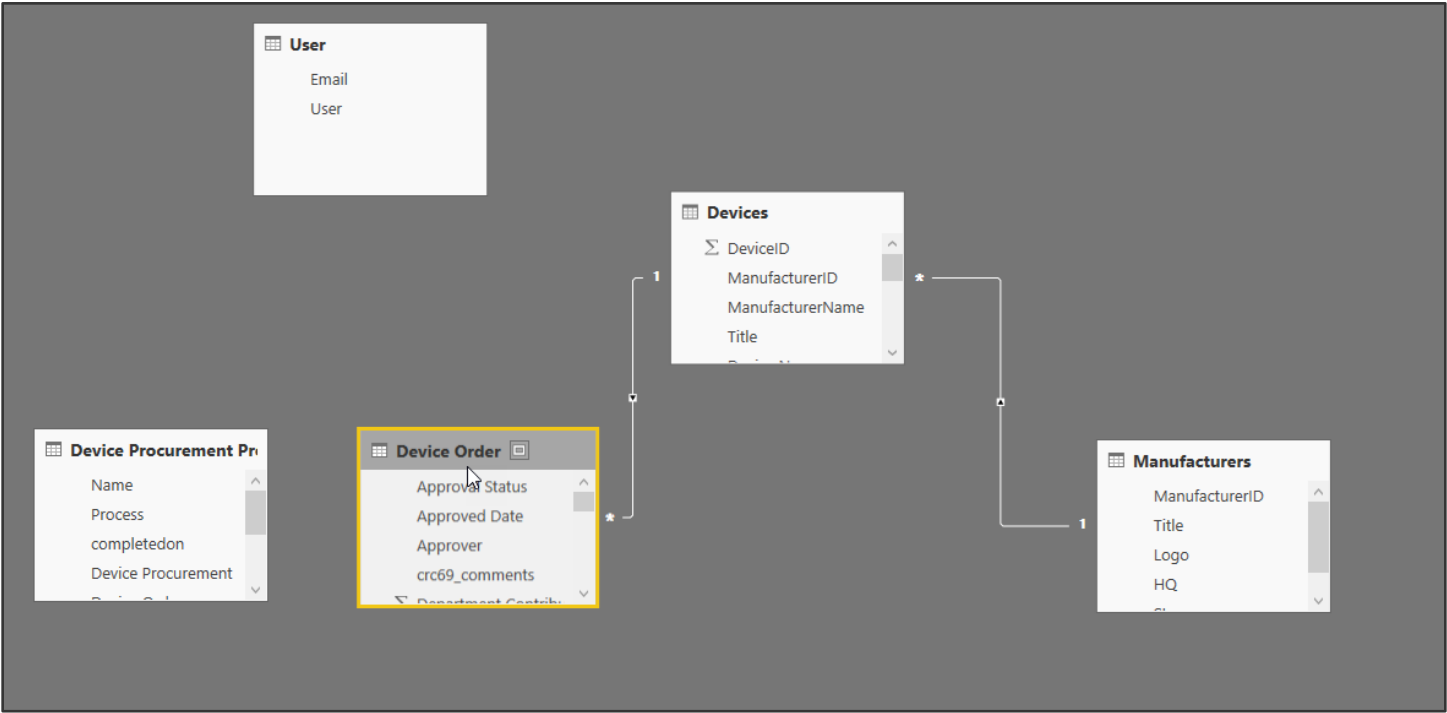
☐ Assume referential integrity

☐ Apply security filter in both directions

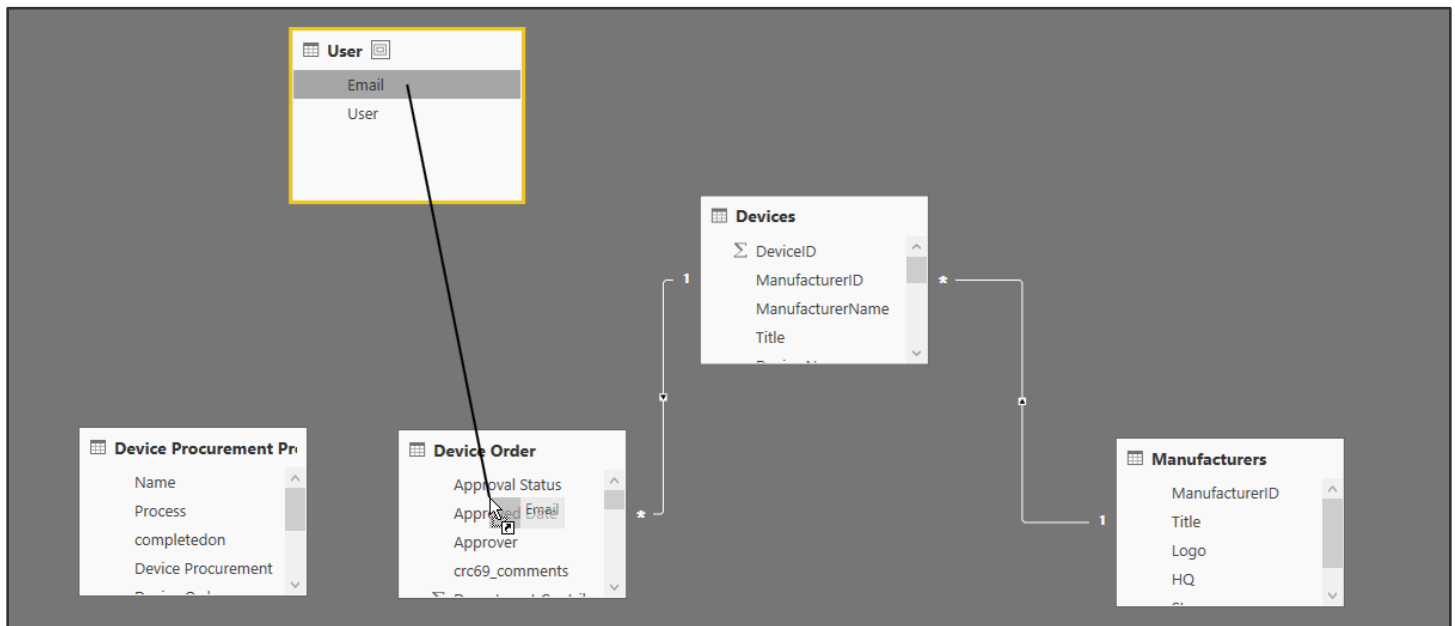
OK

Cancel

4. Reposition the table as shown in the image below, so it will be easier to visualize the relationships.



5. Drag the Email column of the User table to the Device Order table and release it.



6. A One to Many relationship will be created. Double click on the new relationship to edit the properties
7. Select Requested By from the Device Order table, Email from User table and click OK. *Note: Yes the Requested By should also have e-mails in order for them to match, this is just different in the historical data you imported and won't impact your results in this lab.*

Device Order

	Estimated Ship Date	Price	Requested Date	Requested By	Capital Approved	Device Configured
0f992	7/29/2018 6:00:00 AM	999.99	7/5/2018 6:00:00 AM	Berenice Zarrella	False	Fal
0f992	11/20/2017 7:00:00 AM	999.99	10/25/2017 6:00:00 AM	Florencia Gee	False	Fal
0f992	6/14/2018 6:00:00 AM	999.99	5/27/2018 6:00:00 AM	Milagro Spires	False	Fal

User

Email	User
crmoln@microsoft.com	Support User
crmoln2@microsoft.com	Delegated Admin
bap_sa@microsoft.com	Business Application Platform Service account

Cardinality: Many to one (*:1)

Cross filter direction: Single

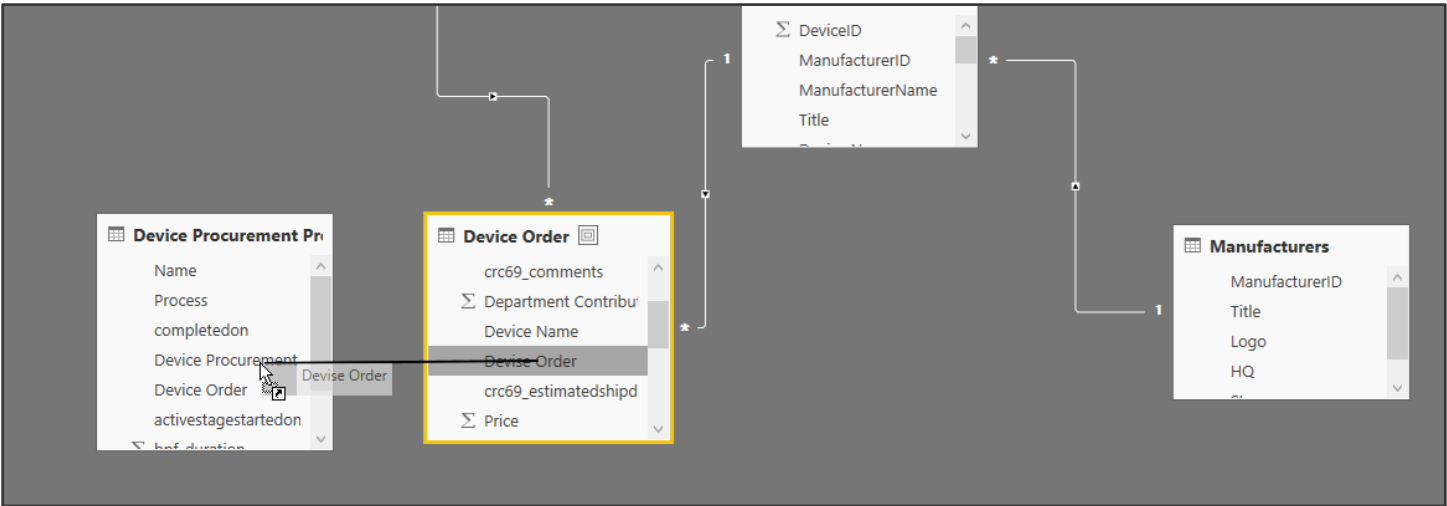
☒ Make this relationship active

☐ Assume referential integrity

☐ Apply security filter in both directions

OK Cancel

8. Drag Device Order column from the Device Order table and drop it in the Device Procurement Processes table.



- 9. A new relationship will be created. Double click on the new relationship to edit the properties.
- 10. Select the Device Order column for both tables.
- 11. Change the Cardinality to One to one, if it is not already set and then click OK.

Device Order

Department Contribution	Device Name	Device Order	Estimated Ship Date	Price
100	Toshiba - Tecra R950	d7411da3-b1b3-e811-a964-000d3ab0f992	7/29/2018 6:00:00 AM	999.99
100	Toshiba - Tecra R950	e3411da3-b1b3-e811-a964-000d3ab0f992	11/20/2017 7:00:00 AM	999.99
100	Asus - Transformer Book	e9411da3-b1b3-e811-a964-000d3ab0f992	6/14/2018 6:00:00 AM	999.99

Device Procurement Processes

Process	Device Order	Device Procurement Process
3b5f4af3-dd30-4018-b887-2fadc0e94c58	8d411da3-b1b3-e811-a964-000d3ab0f992	28ffd4ae-b1b3-e811-a964-000d3ab0f000
3b5f4af3-dd30-4018-b887-2fadc0e94c58	8f411da3-b1b3-e811-a964-000d3ab0f992	2cffd4ae-b1b3-e811-a964-000d3ab0f000
3b5f4af3-dd30-4018-b887-2fadc0e94c58	91411da3-b1b3-e811-a964-000d3ab0f992	30ffd4ae-b1b3-e811-a964-000d3ab0f000

Cardinality

One to one (1:1)

Cross filter direction

Both

☒ Make this relationship active

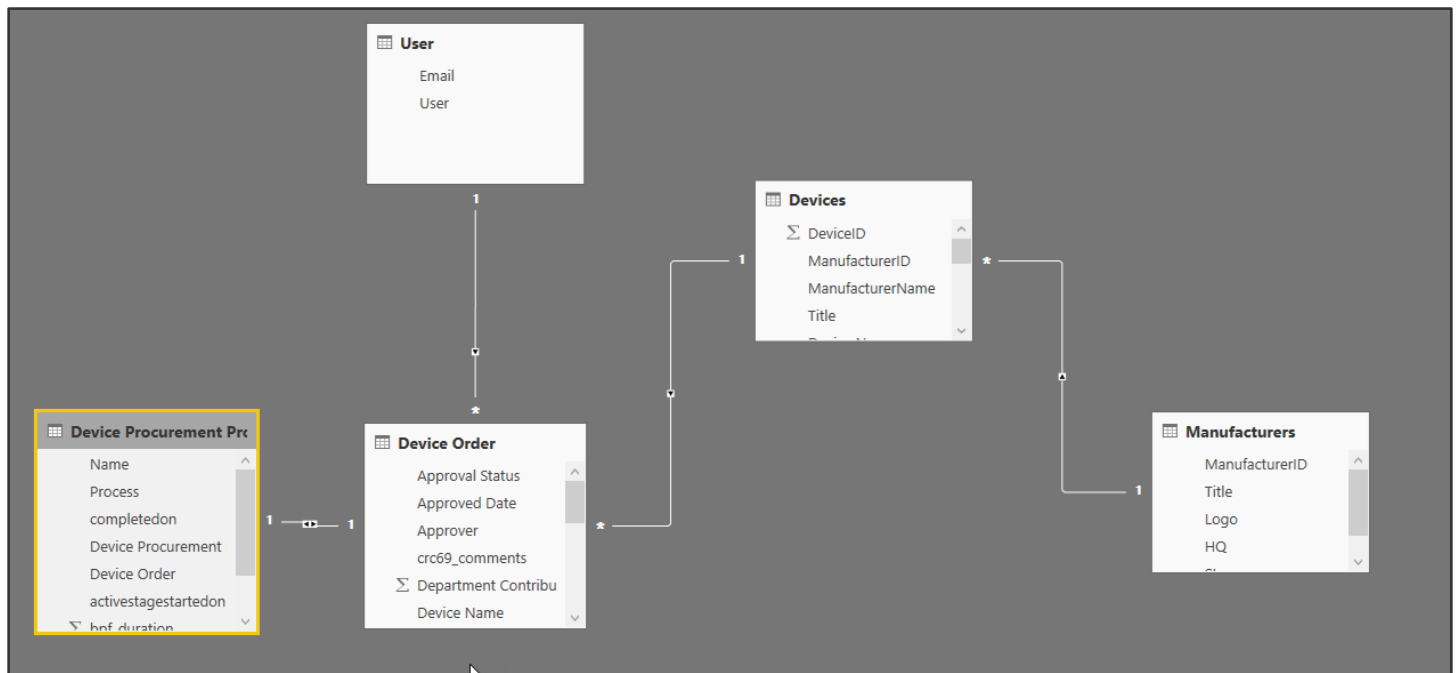
☐ Assume referential integrity

☐ Apply security filter in both directions

OK

Cancel

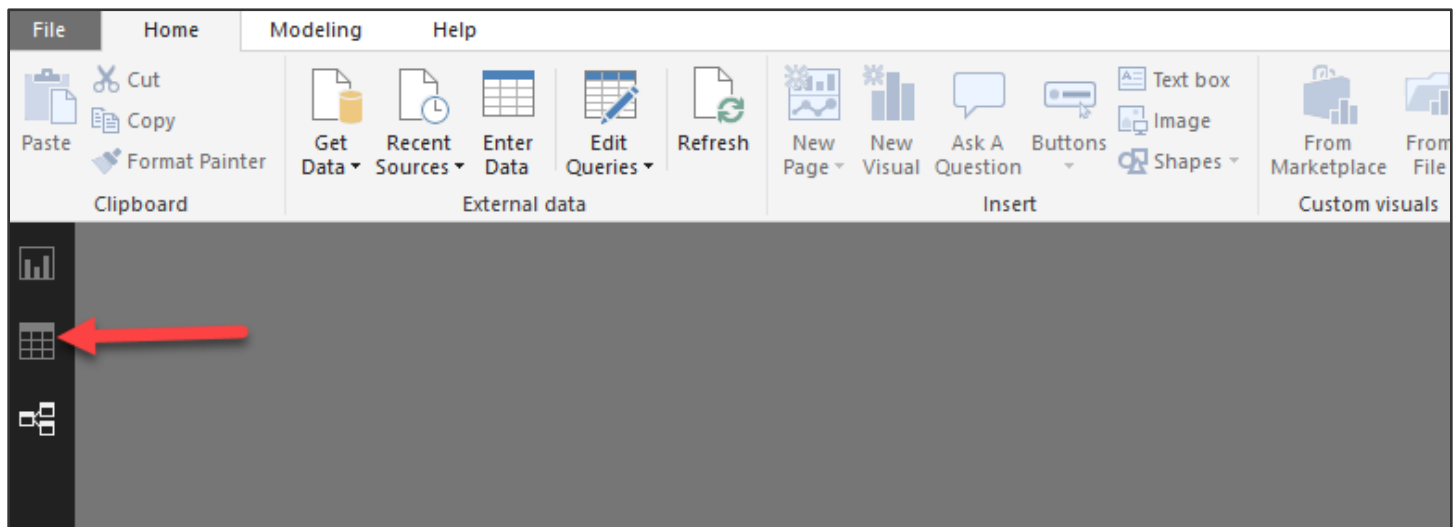
- 12. Your relationships will now look like the image below.



Task 2: Add Link to the Common Data Service (CDS) Record Form

A common ask when building a Power BI visual of CDS data is to allow the user to open the record using the CDS form. In this task you will build a column that will be a link to directly open the record.

1. Select Data.



2. Right click on the Device Order table and select New Column.

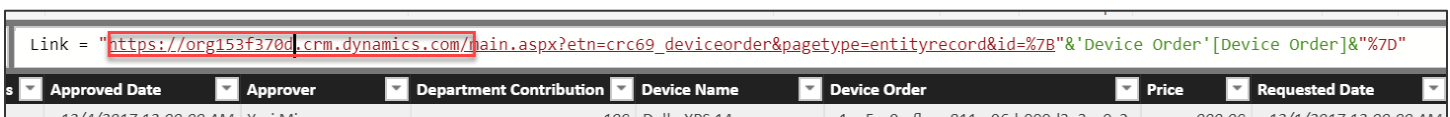
	Estimated Ship Date	Price	Requested Date	Requested By	Capital Approved	
e811-a964-000d3ab0f992	6/14/2018 6:00:00 AM	999.99	5/27/2018 6:00:00 AM	Milagro Spires	False	
e811-a964-000d3ab0f992	4/12/2018 6:00:00 AM	999.99	3/27/2018 6:00:00 AM	Alphonso Halas	False	
e811-a964-000d3ab0f992	9/10/2018 6:00:00 AM	999.99	8/21/2018 6:00:00 AM	Tatyana Overlock	False	
e811-a964-000d3ab0f992	1/20/2018 7:00:00 AM	999.99	1/5/2018 7:00:00 AM	Rosaura Hower		
e811-a964-000d3ab0f992	11/30/2017 7:00:00 AM	999.99	11/15/2017 7:00:00 AM	Luanna Mulherin		
e811-a964-000d3ab0f992	5/12/2018 6:00:00 AM	999.99	4/22/2018 6:00:00 AM	Dan Walt		
e811-a964-000d3ab0f992	4/4/2018 6:00:00 AM	999.99	3/14/2018 6:00:00 AM	Indira Neifer		
e811-a964-000d3ab0f992	5/16/2018 6:00:00 AM	999.99	4/26/2018 6:00:00 AM	Lucia Mcquillan		

- Provide the function below to build the column value. This needs to be adjusted to match your organization url and entity type name that can vary from environment to environment, for now paste it in exactly like you have below

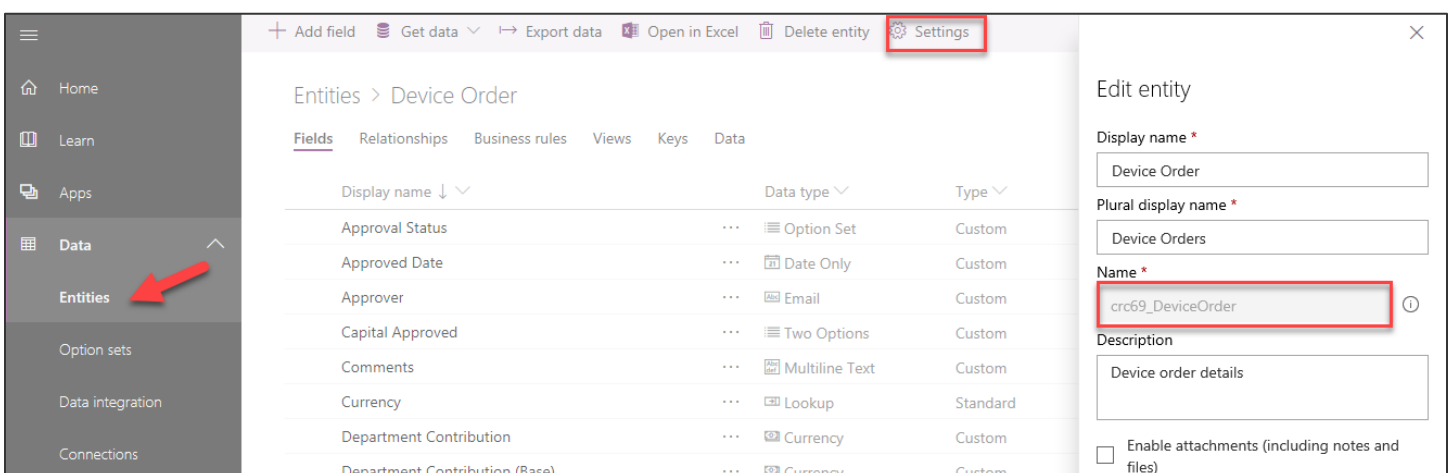
Link =

"https://orgb0a32835.crm.dynamics.com/main.aspx?etn=crc69_deviceorder&pagetype=entityrecord&id=%7B"&'Device Order'[Device Order]&"%7D"

- Now get your organization URL, you can get this from <https://admin.powerplatform.microsoft.com> by selecting the environments and then ... and then open copy the url and replace it in the function



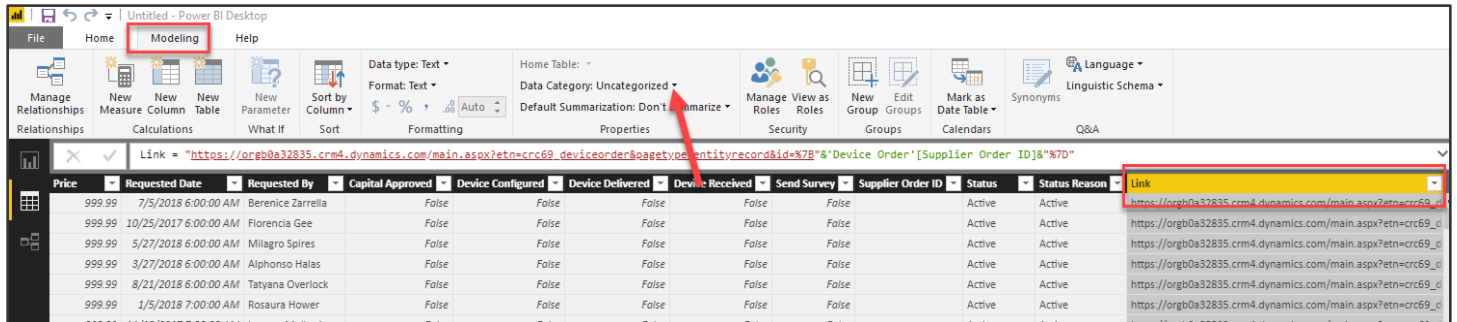
- Next, we need to get the entity schema name for Device Order. You can get that by going to web.powerapps.com -> Data, select the Device Order entity and click the Settings button



- If your value is different than what is in the Link function replace that in Power BI. This value can vary from environment to environment

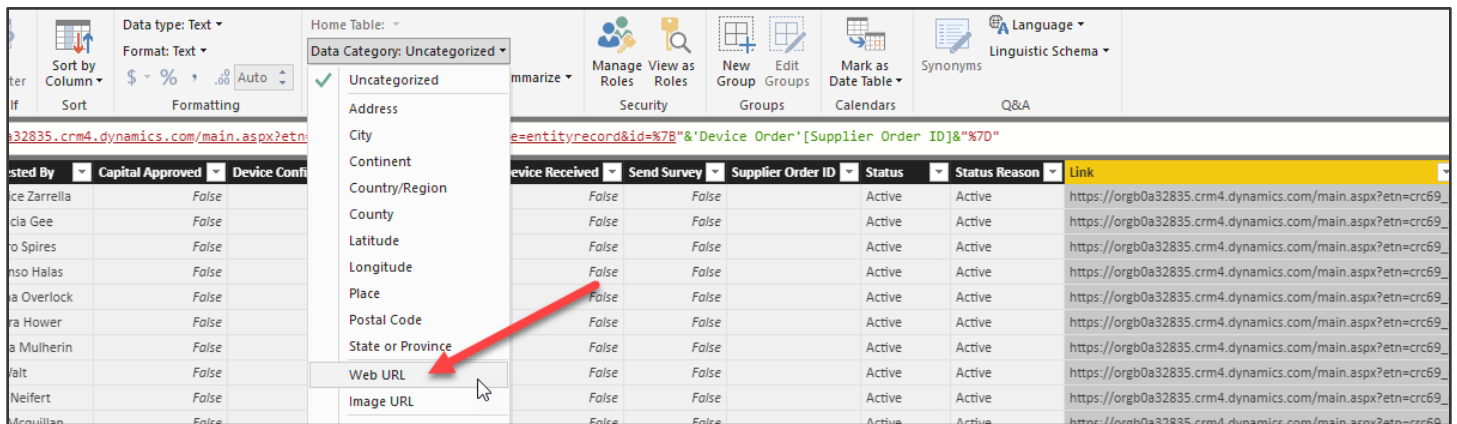
External data	Insert	Custom visuals	Themes	Relationships	Calculations	Share
Link = "https://org153f370d.crm.dynamics.com/main.aspx?etn=crc69_deviceorder&pagetype=entityrecord&id=%7B"&'Device Order'[Device Order]&"%7D"						
Approved Date	Approver	Department Contribution	Device Name	Device Order	Price	Requested Date
12/4/2017 12:00:00 AM	Yuri Mignone		100 - Dell - XPS 14	a1ea5cr9-efba-e811-a96d-000d3a3ac0c2	999.99	12/1/2017 12:00:00

7. Select the new column and from the Modeling tab click Data Category.



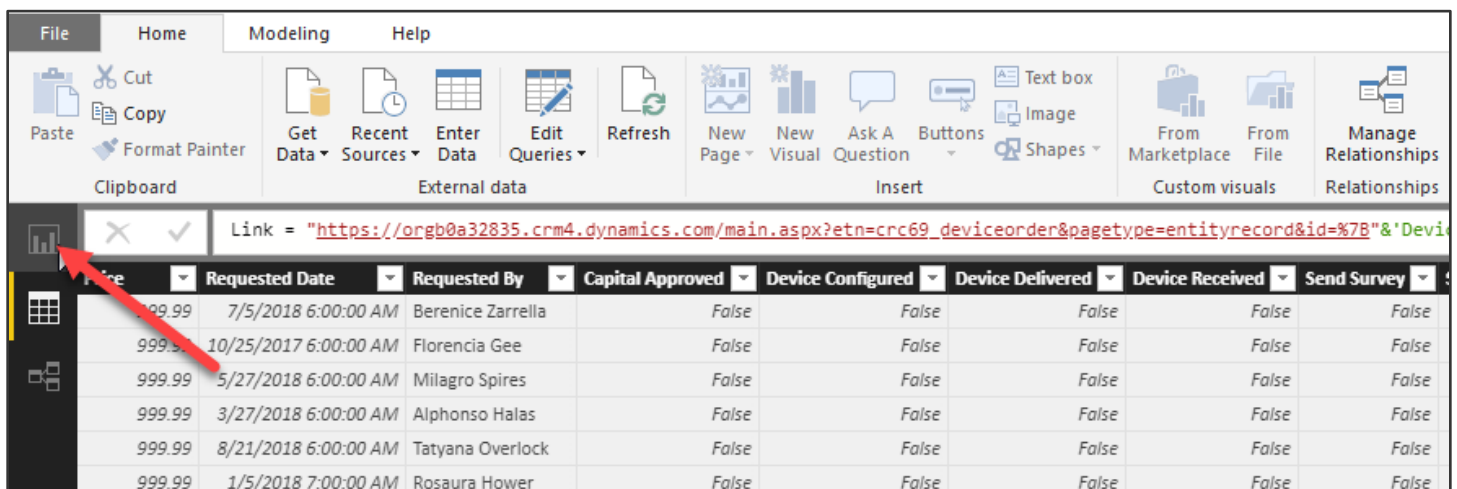
Price	Requested Date	Requested By	Capital Approved	Device Configured	Device Delivered	Device Received	Send Survey	Supplier Order ID	Status	Status Reason	Link
999.99	7/5/2018 6:00:00 AM	Berenice Zarrella	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d
999.99	10/25/2017 6:00:00 AM	Florencia Gee	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d
999.99	5/27/2018 6:00:00 AM	Milagro Spires	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d
999.99	3/27/2018 6:00:00 AM	Alphonso Halas	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d
999.99	8/21/2018 6:00:00 AM	Tatyana Overlock	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d
999.99	1/5/2018 7:00:00 AM	Rosaura Hower	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d

8. Select Web URL.



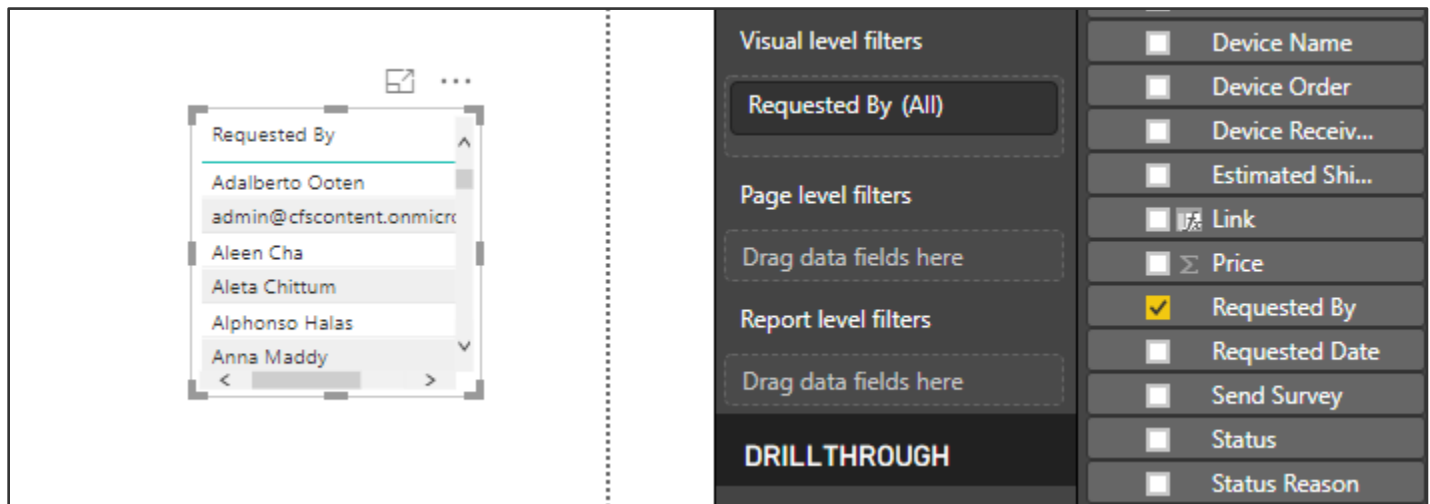
Price	Requested Date	Requested By	Capital Approved	Device Configured	Device Delivered	Device Received	Send Survey	Supplier Order ID	Status	Status Reason	Link
999.99	7/5/2018 6:00:00 AM	Berenice Zarrella	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d
999.99	10/25/2017 6:00:00 AM	Florencia Gee	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d
999.99	5/27/2018 6:00:00 AM	Milagro Spires	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d
999.99	3/27/2018 6:00:00 AM	Alphonso Halas	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d
999.99	8/21/2018 6:00:00 AM	Tatyana Overlock	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d
999.99	1/5/2018 7:00:00 AM	Rosaura Hower	False	False	False	False	False	False	Active	Active	https://orgb0a32835.crm4.dynamics.com/main.aspx?etn=crc69_d

9. Select Reports.



Price	Requested Date	Requested By	Capital Approved	Device Configured	Device Delivered	Device Received	Send Survey
999.99	7/5/2018 6:00:00 AM	Berenice Zarrella	False	False	False	False	False
999.99	10/25/2017 6:00:00 AM	Florencia Gee	False	False	False	False	False
999.99	5/27/2018 6:00:00 AM	Milagro Spires	False	False	False	False	False
999.99	3/27/2018 6:00:00 AM	Alphonso Halas	False	False	False	False	False
999.99	8/21/2018 6:00:00 AM	Tatyana Overlock	False	False	False	False	False
999.99	1/5/2018 7:00:00 AM	Rosaura Hower	False	False	False	False	False

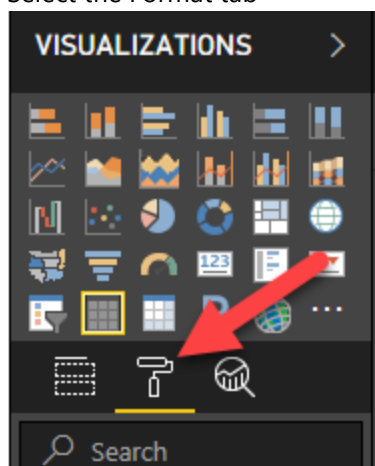
10. Expand the Device Order table and select Requested By.



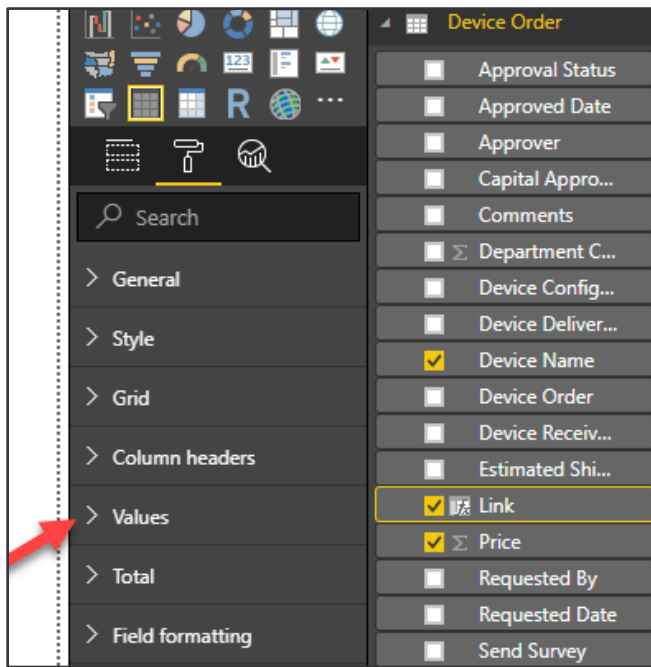
11. Select Approver, Approval Status, Price, Device Name, and Link form the Device Order table.

Requested By	Approver	Approval Status	Price	Device Name	Link
Anna Maddy	Patience Patman	Approve	1,299.99	Asus - ET2701INTI	https://orgb0a32835.crm4.dynamics.com/main.aspx
Artie Nasser	Emanuel Chapdelaine	Approve	799.99	Sony - VAIO S	https://orgb0a32835.crm4.dynamics.com/main.aspx
Chieko Swofford	Latrice Critelli	Approve	879.00	Lenovo - B540	https://orgb0a32835.crm4.dynamics.com/main.aspx
Porsche Espinal	Filomena Boldt	Approve	699.99	Lenovo - Essential G Series	https://orgb0a32835.crm4.dynamics.com/main.aspx
Hollie Garn	Gita Vannote	Approve	699.99	Lenovo - G480	https://orgb0a32835.crm4.dynamics.com/main.aspx
Concetta Nagao	Emanuel Chapdelaine	Approve	419.99	Samsung - Series 3 15.6	https://orgb0a32835.crm4.dynamics.com/main.aspx
Katharina Mazon	Joanna Hoos	Approve	379.99	Acer - Aspire E	https://orgb0a32835.crm4.dynamics.com/main.aspx
Alphonso Halas	Latrice Critelli	Reject	419.99	Samsung - Series 3 15.6	https://orgb0a32835.crm4.dynamics.com/main.aspx
Veriline Younce	Yuri Mignone	Reject	1,399.99	Asus - ET2411INTI	https://orgb0a32835.crm4.dynamics.com/main.aspx
Jamey Revard	Emanuel Chapdelaine	Reject	1,099.99	Asus - Zenbook	https://orgb0a32835.crm4.dynamics.com/main.aspx
Susan Coover	Patience Patman	Approve	1,349.00	HP - HP EliteBook Folio 9470m	https://orgb0a32835.crm4.dynamics.com/main.aspx
Lucia McQuillan	Mae Jenkins	Approve	999.99	Sony - VAIO E 15	https://orgb0a32835.crm4.dynamics.com/main.aspx
MaryJane Laudenslager	Joanna Hoos	Approve	1,299.99	Samsung - Series 9 13.3	https://orgb0a32835.crm4.dynamics.com/main.aspx
Lanita Lamagna	Gita Vannote	Approve	649.99	Sony - VAIO T	https://orgb0a32835.crm4.dynamics.com/main.aspx
Tayna Shain	Yuri Mignone	Approve	379.99	Acer - Aspire One AO756-4890	https://orgb0a32835.crm4.dynamics.com/main.aspx
Leatrice Hostetter	Gita Vannote	Approve	1,399.99	Toshiba - All-in-One LX835-D3380	https://orgb0a32835.crm4.dynamics.com/main.aspx
Artie Wesolowski	Filomena Boldt	Approve	499.99	Dell - Inspiron One 20	https://orgb0a32835.crm4.dynamics.com/main.aspx
Lyndsay Shake	Latrice Critelli	Reject	1,599.99	Samsung - Series 9 Premium	https://orgb0a32835.crm4.dynamics.com/main.aspx
Vanetta Vansycoc	Emanuel Chapdelaine	Reject	899.99	HP - TouchSmart 320-1030	https://orgb0a32835.crm4.dynamics.com/main.aspx
Loise Ebert	Patience Patman	Reject	949.99	Sony - VAIO T 15	https://orgb0a32835.crm4.dynamics.com/main.aspx
Deneen Bradley	Patricia Reeves	Approve	389.00	Lenovo - S300	https://orgb0a32835.crm4.dynamics.com/main.aspx
Elizabeth Forth	Yuri Mignone	Approve	899.00	Lenovo - IdeaPad Z Series	https://orgb0a32835.crm4.dynamics.com/main.aspx

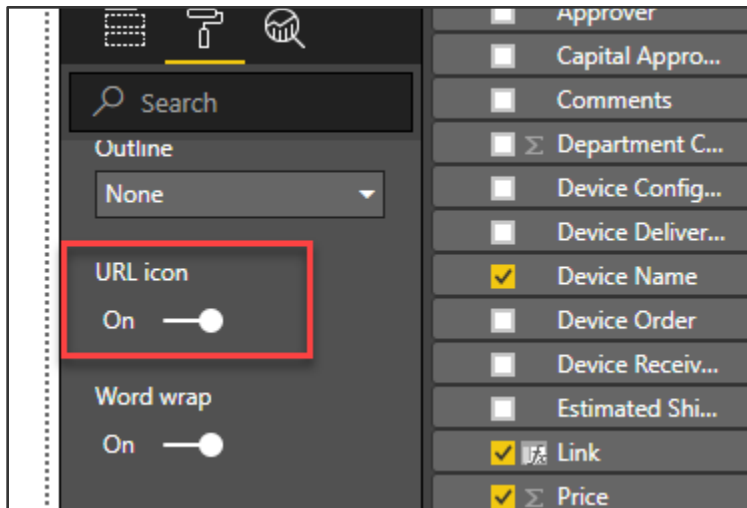
12. Select the Format tab



13. Select the Link column and from the Format tab, expand Values.



14. Turn on the URL Icon.



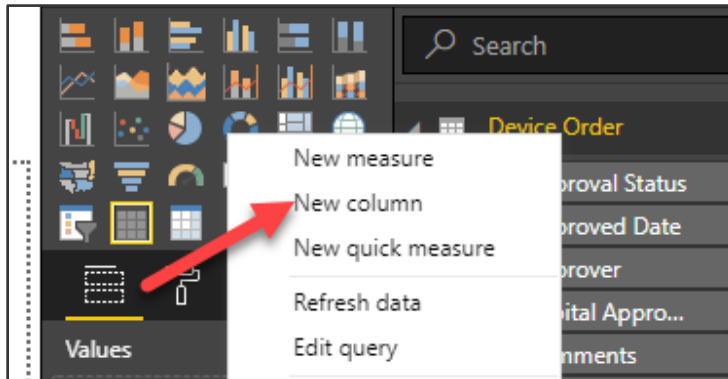
15. Click on the link. Your CDS record should open.

Requested By	Approver	Approval Status	Price	Device Name	Link
Anna Maddy	Patience Patman	Approve	1,299.99	Asus - ET2701INTI	Link
Artie Nasser	Emanuel Chapdelaine	Approve	799.99	Sony - VAIO S	Link
Chieko Swofford	Latrice Critelli	Approve	879.00	Lenovo - B540	Link
Corse Espinal	Filomena Boldt	Approve	699.99	Lenovo - Essential G Series	Link
Colbie Garn	Gita Vannote	Approve	699.99	Lenovo - G480	Link
Concetta Nagao	Emanuel Chapdelaine	Approve	419.99	Samsung - Series 3 15.6	Link
Catharina Mazon	Joanna Hoos	Approve	379.99	Acer - Aspire E	Link
Alphonso Halas	Latrice Critelli	Reject	419.99	Samsung - Series 3 15.6	Link
Erline Younce	Yuri Mignone	Reject	1,399.99	Asus - ET2411INTI	Link
Amey Revard	Emanuel Chapdelaine	Reject	1,099.99	Asus - Zenbook	Link
Susan Coover	Patience Patman	Approve	1,349.00	HP - HP EliteBook Folio 9470m	Link

Task 3: Add a Calculated Field for approval time

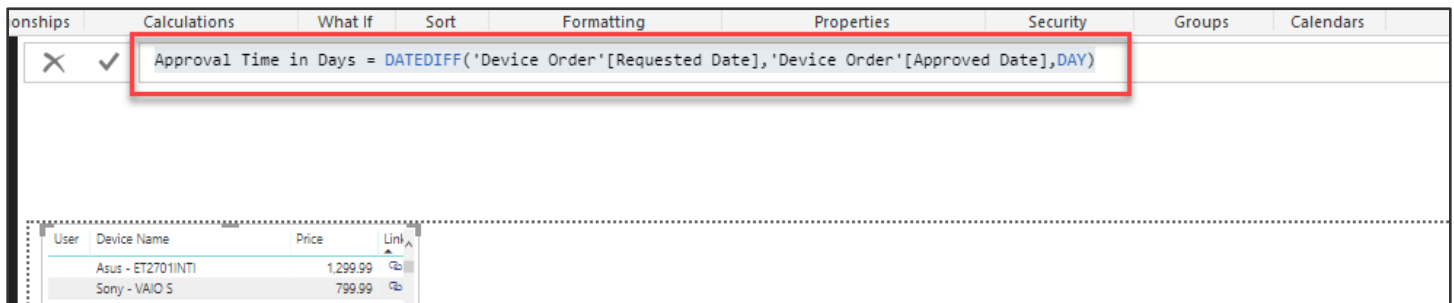
In this task, you will add a calculated column with the approval time in days, you will add a column chart to the report page.

1. Right click on the Device Order table and select New Column.

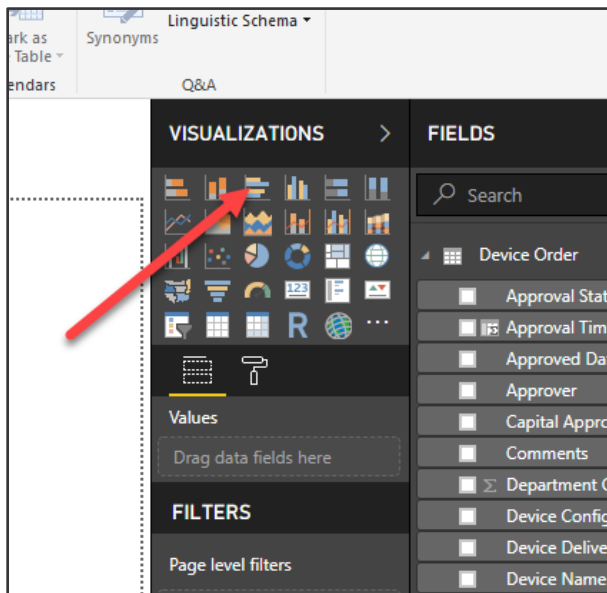


2. Type in the formula bar.

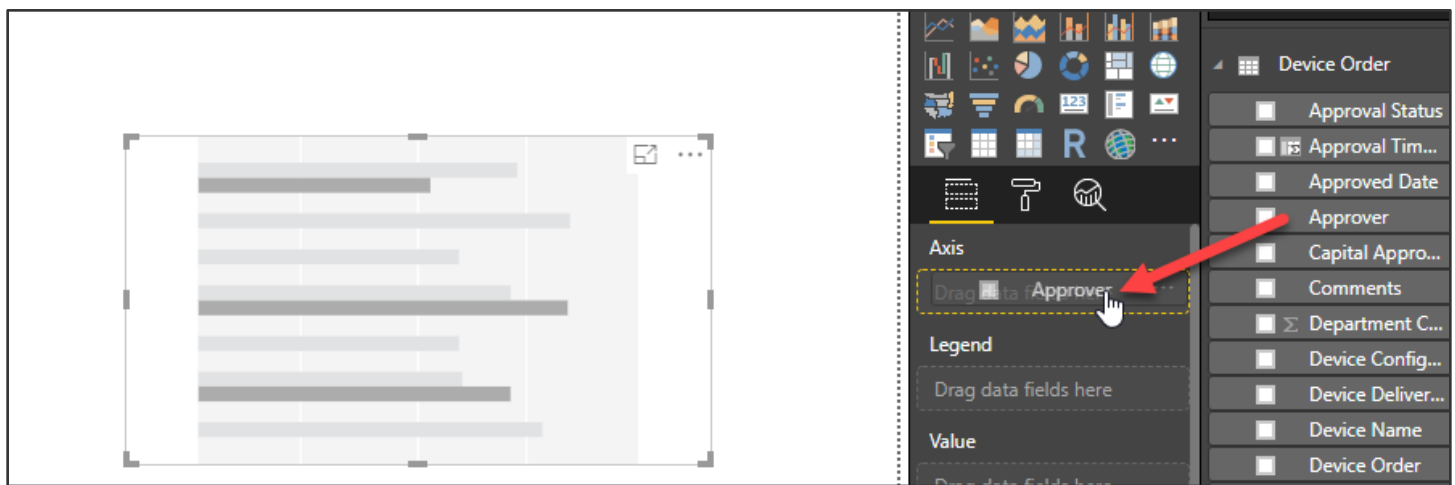
```
Approval Time in Days = DATEDIFF('Device Order'[Requested Date], 'Device Order'[Approved Date], DAY)
```



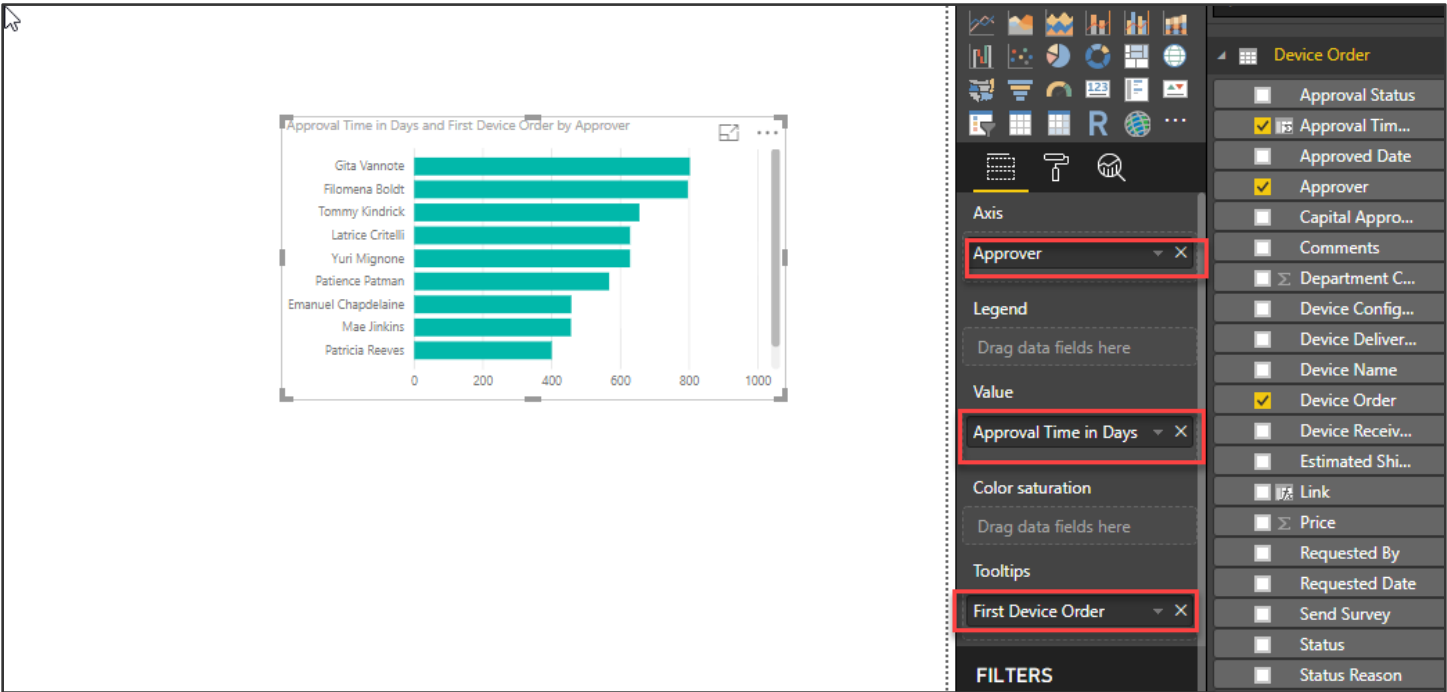
3. Select the canvas and make sure the list of orders is no longer selected and click **Clustered Bar Chart**.



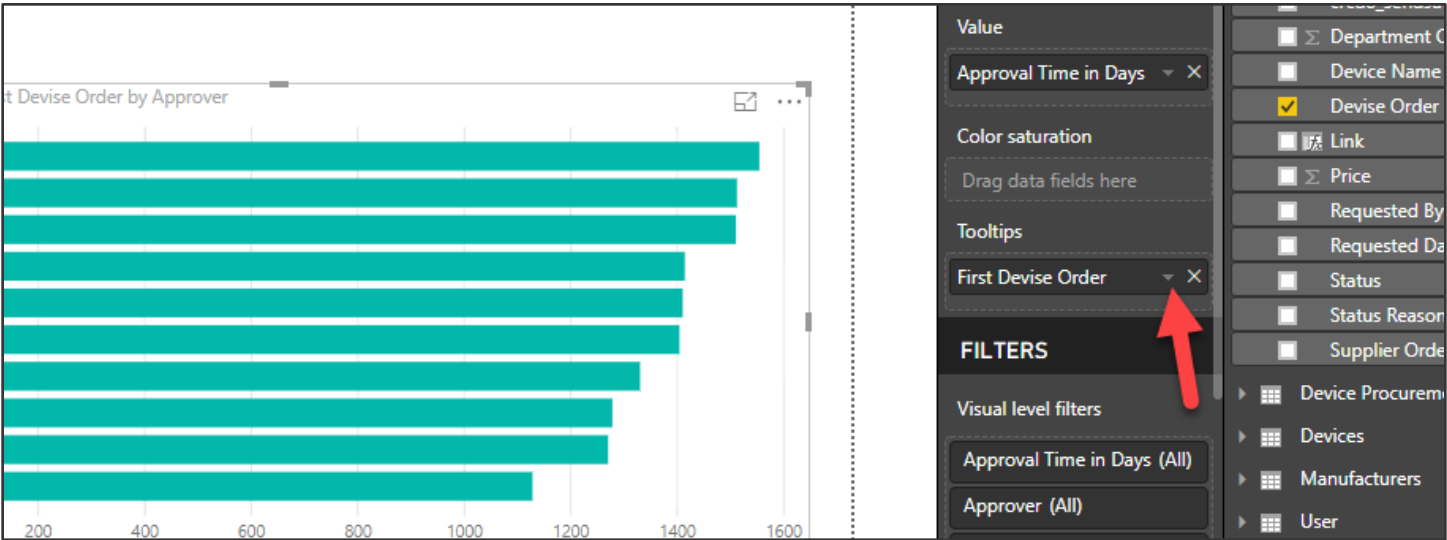
4. Select the chart you added, drag the Approver column and drop it in the Axes target.



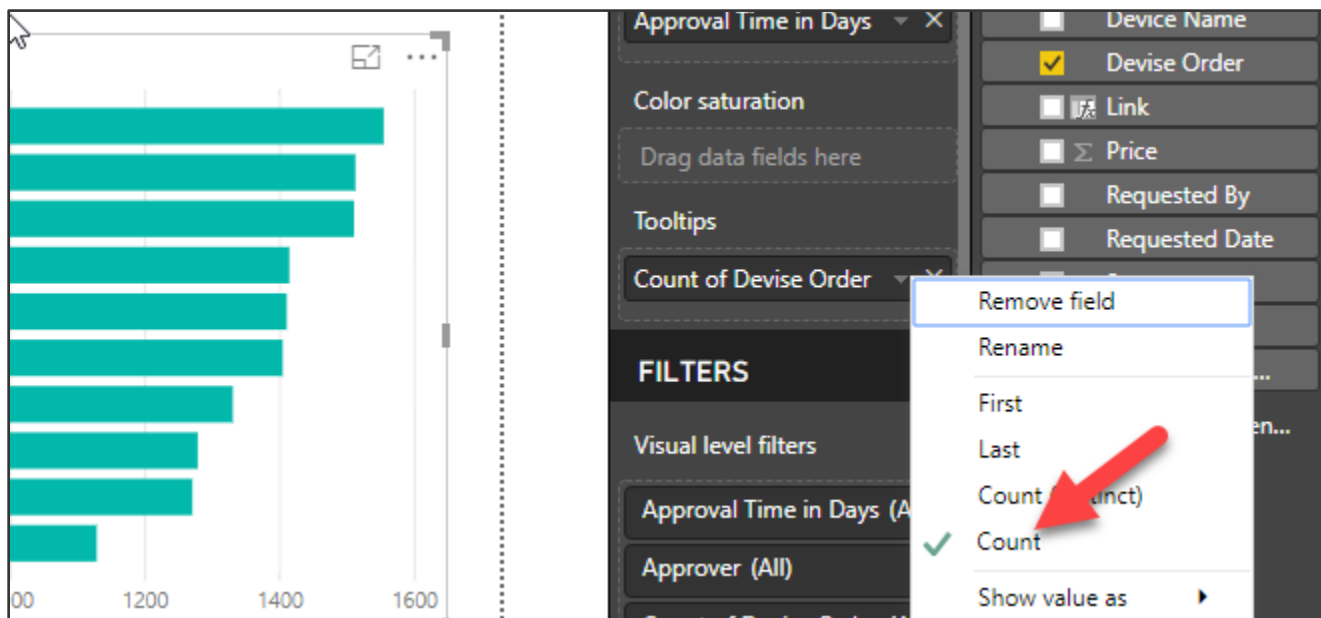
5. Drag **Approval Time in Days** to the Value target and drag **Device Order** to the Tooltip target.



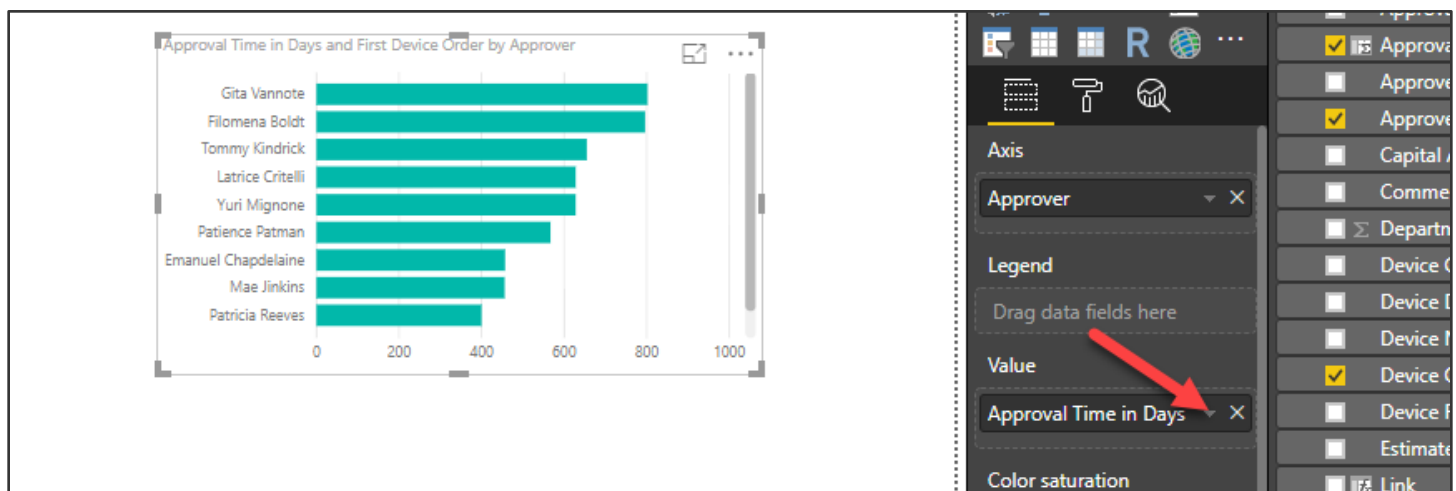
6. Click on the dropdown button next to the First Device Order.



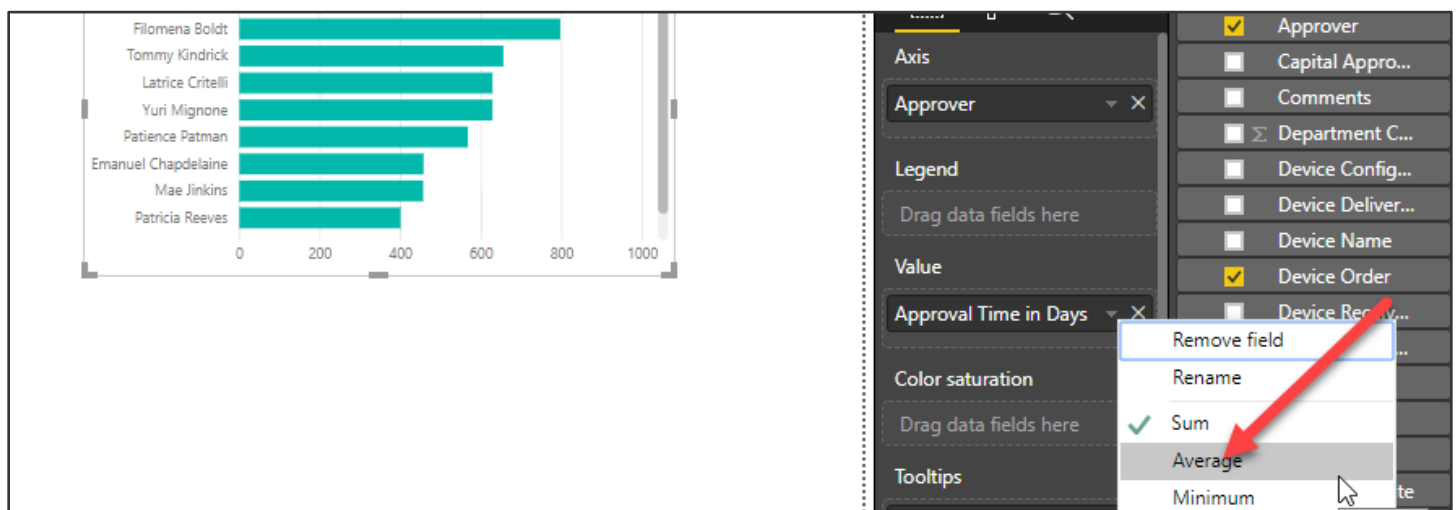
7. Select Count.



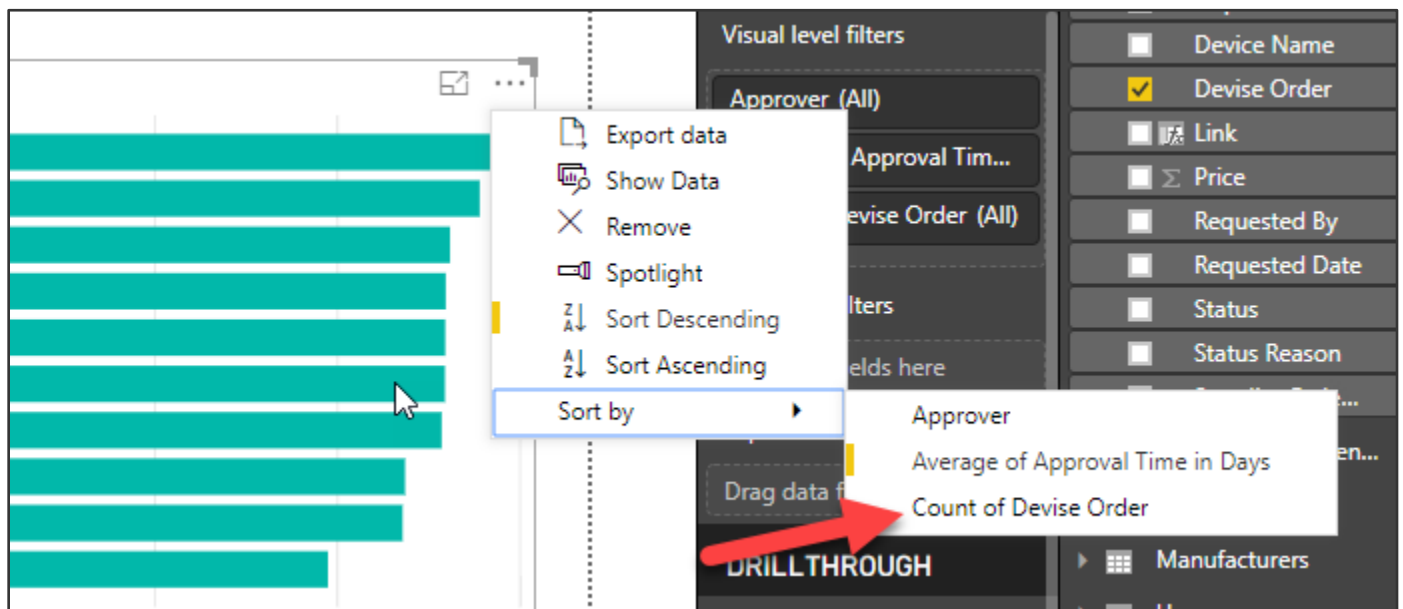
8. Click on the dropdown button next to the Approval Time in Days.



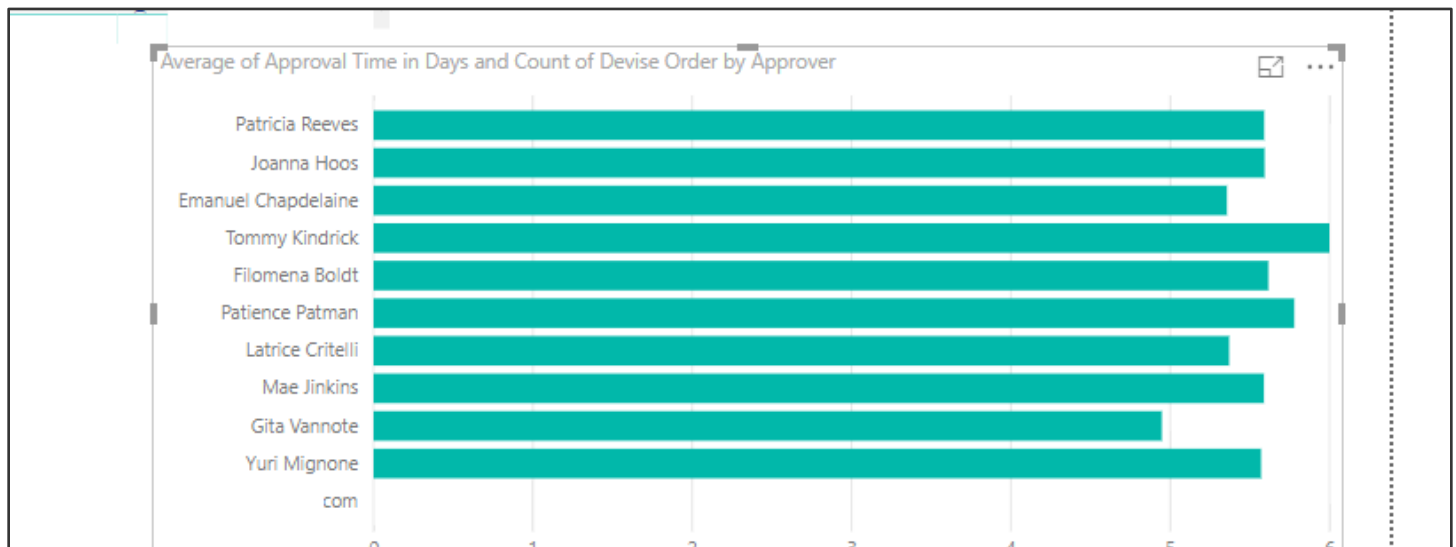
9. Select Average.



10. Click on the chart ellipses(the ...), click Sort By, and select Count of Device Order.



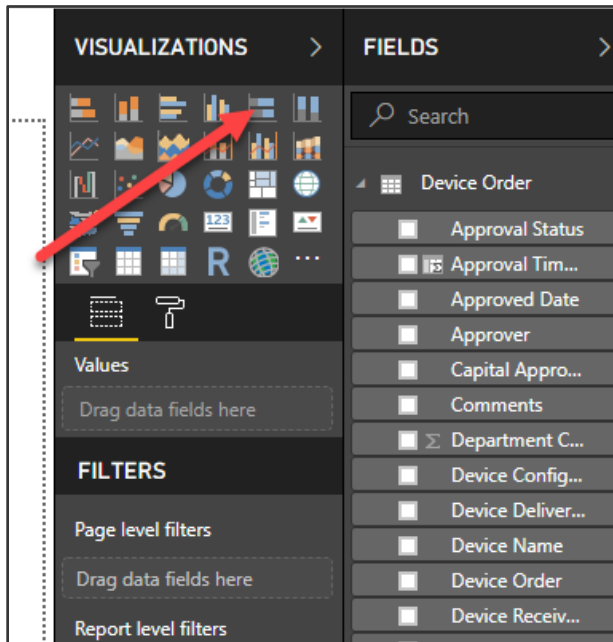
11. Your chart will now look similar to the image below. It may not look exactly like it though...



Exercise 5: Add visuals to the report

Task 1: Add Stacked Bar Chart of orders

1. Select an empty area of the canvas and click on the Stacked Bar Chart.

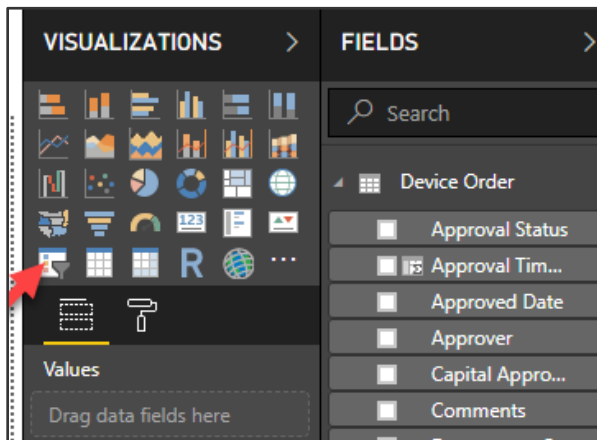


2. Select the columns below for the stacked bar chart. Note: Your chart may not look the same based on how many rejected you have in your data. You can edit the records in CDS and reject more if you want!

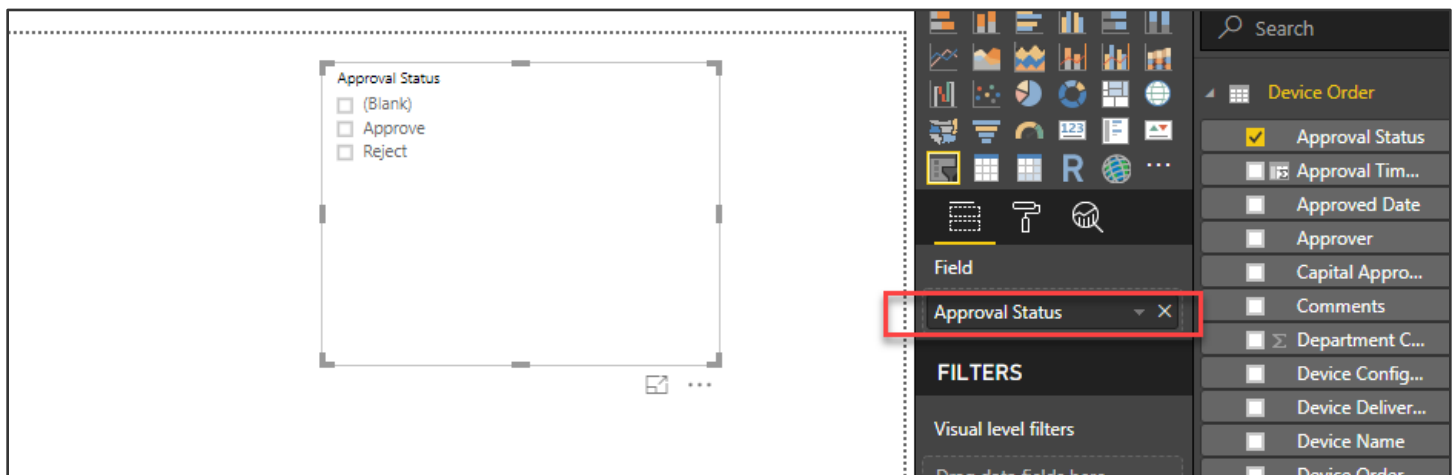


Task 2: Add a Slicer on Approval Status

1. Select an empty area of the canvas and click Slicer.

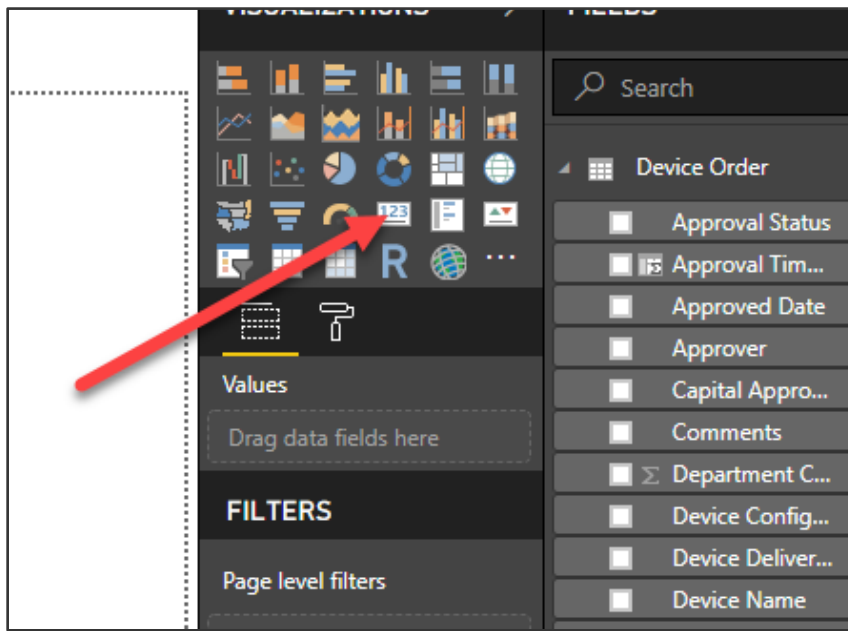


2. Drag the Approval Status to the Field target.

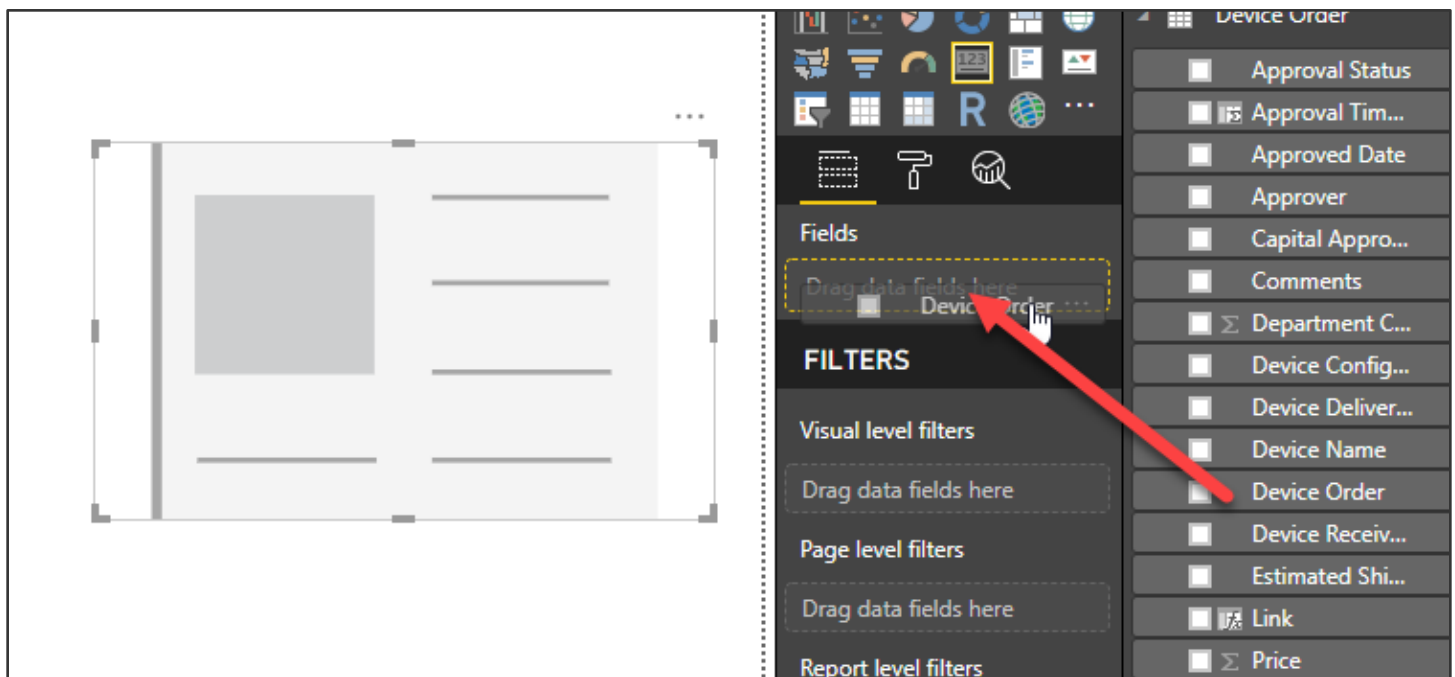


Task 3: Add Cards with Device Order statistics

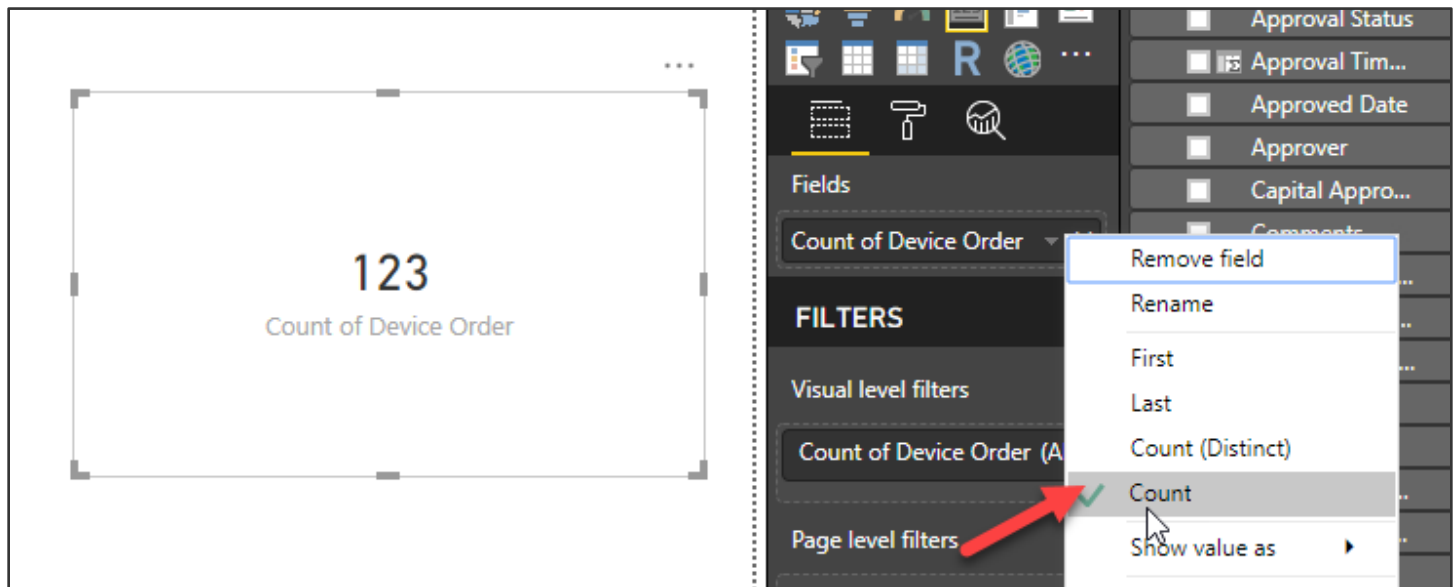
1. Select an empty area of the canvas and click Card.



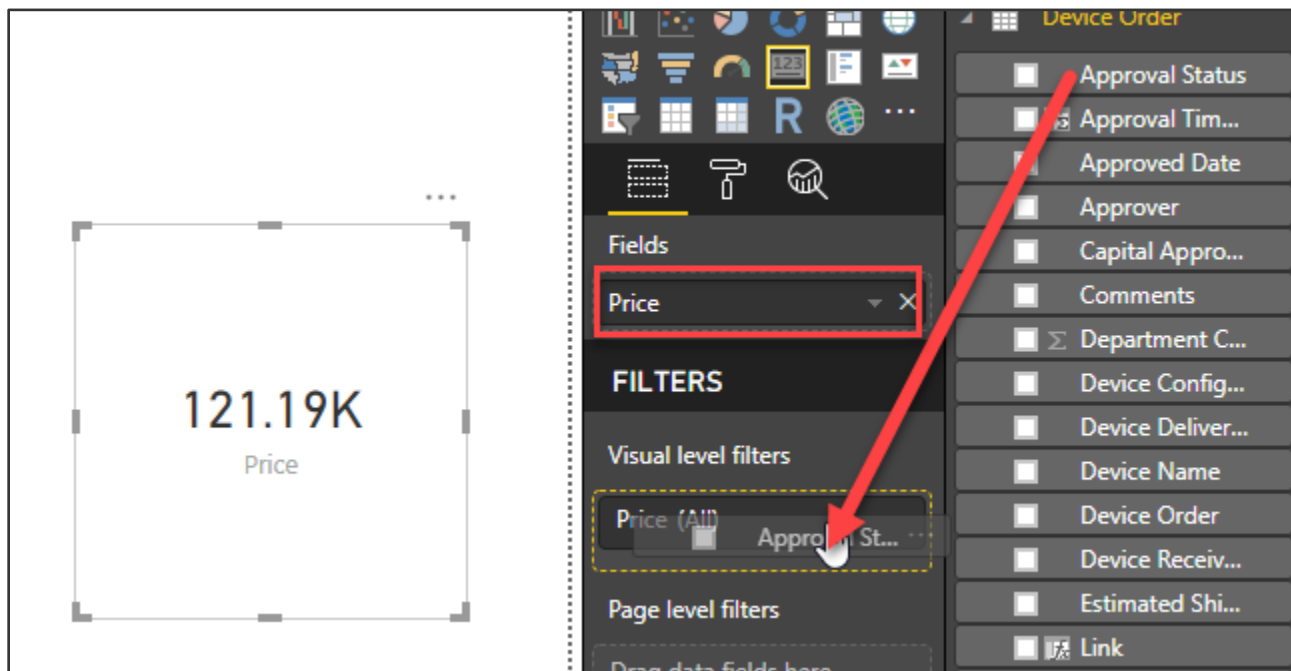
2. This card will show the total count of devices ordered. Select the card and drag Device Order to the Fields target.



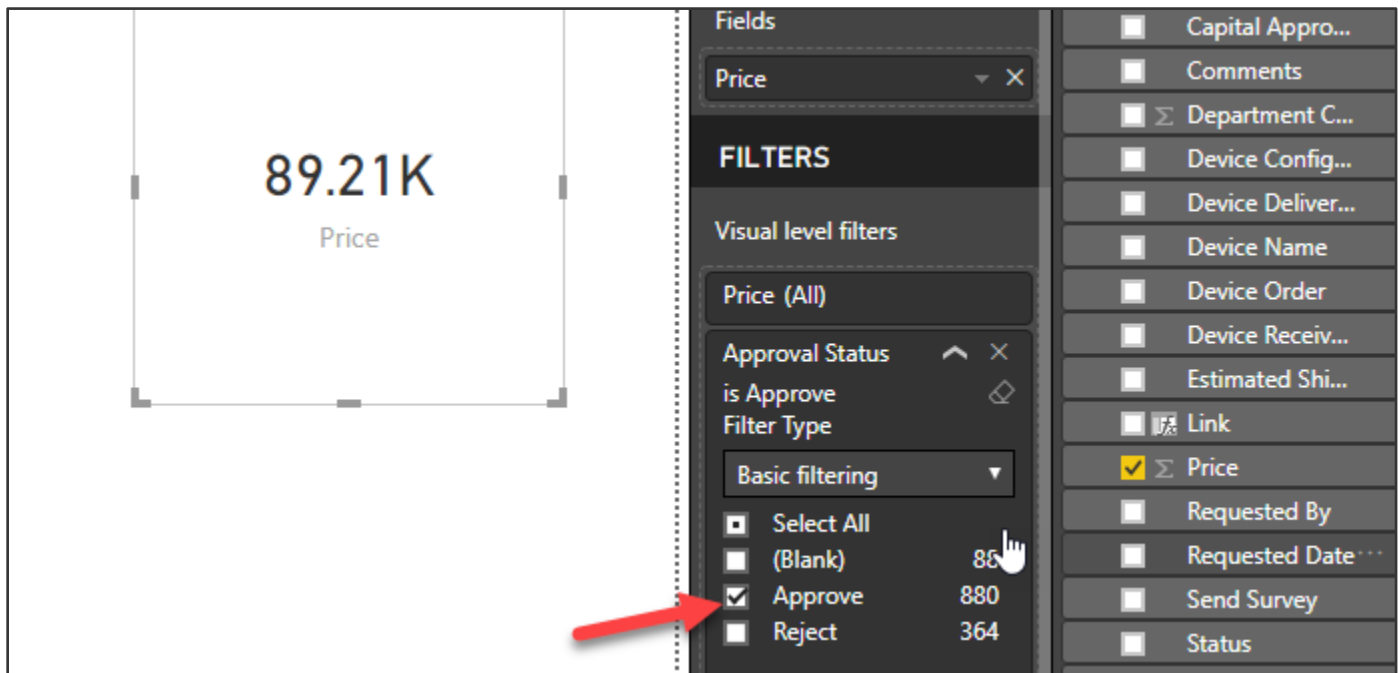
3. Select Count.



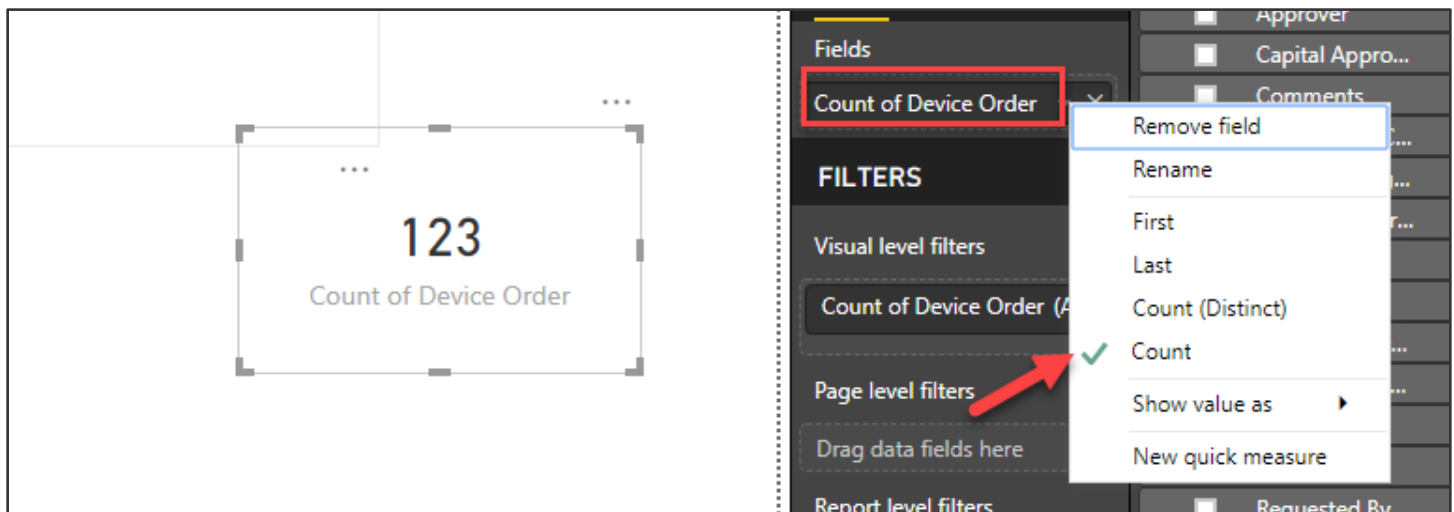
4. Add another Card to the canvas. This card will display total amount spent on approved devices.
5. Drag the Price to the Fields target
6. Drag the Approval Status to the Visual Level target.



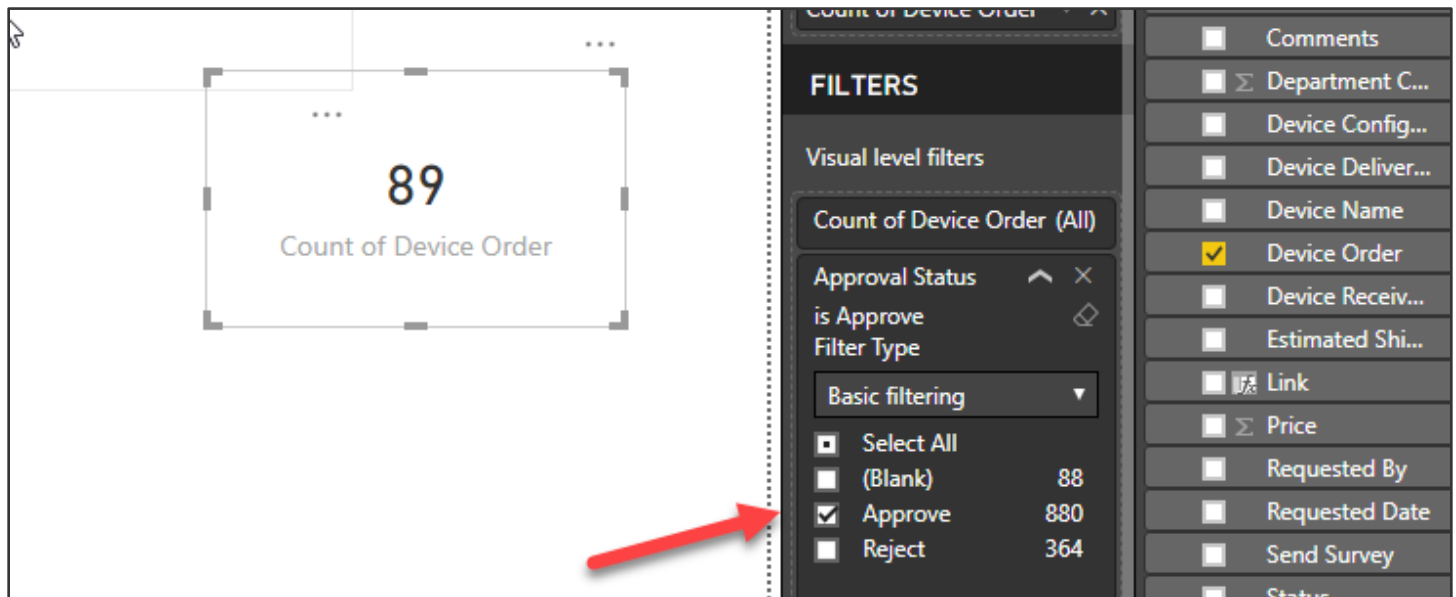
7. Select Approve to filter the amount only to those orders that are approved.



8. Add one more Card to the canvas.
9. This card will show total approved devices. Drag Device Order to the Fields target and select Count.



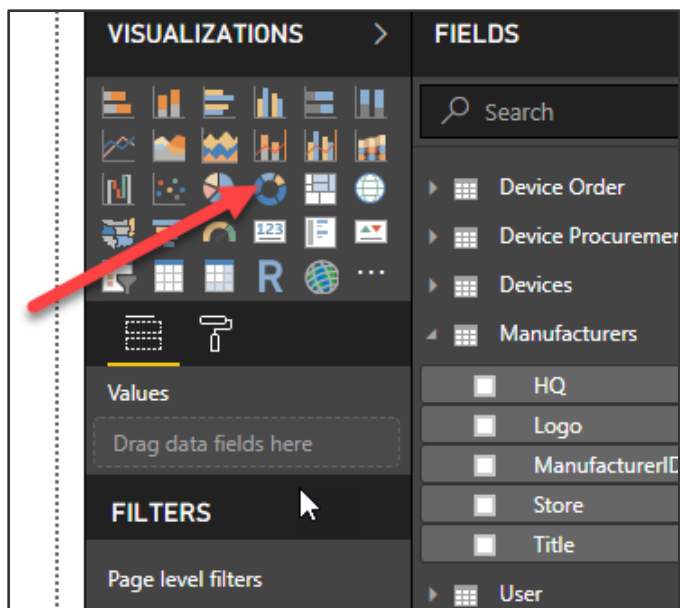
10. Drag Approval Status to the Visual Level target and select Approve.



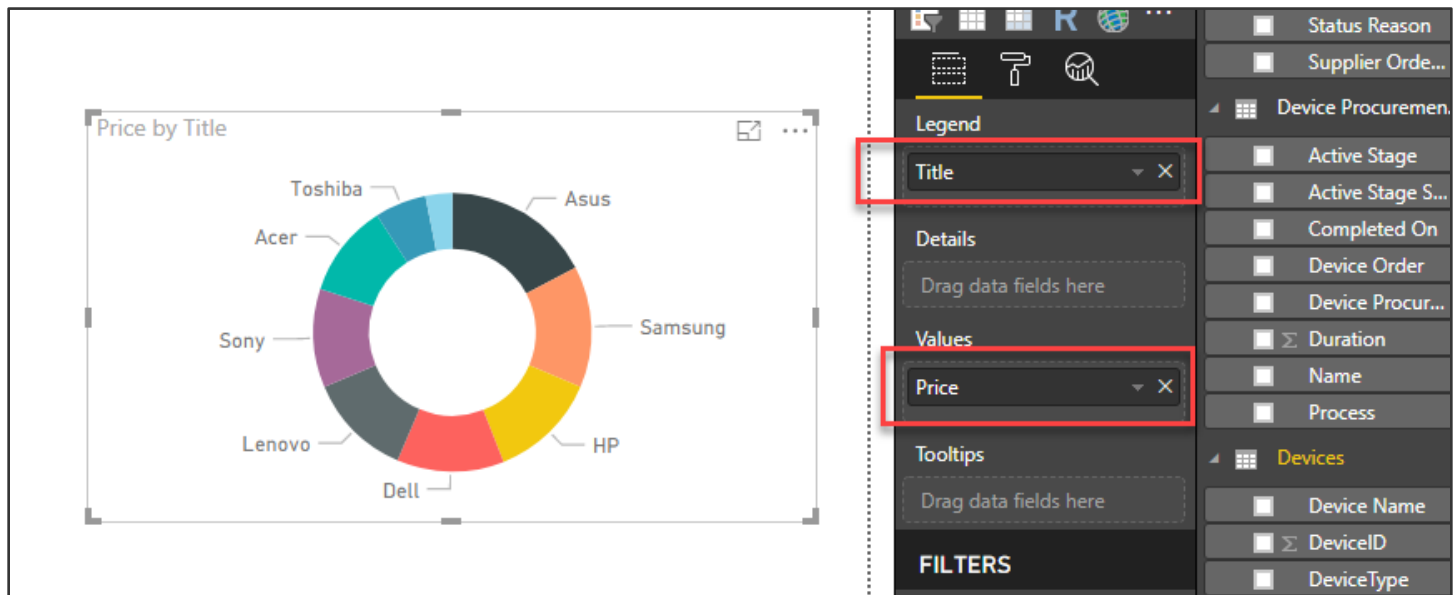
Task 4: Add a Donut Chart by Manufacture

In this task, you will add a Donut to represent the amount spent by manufacture. This can provide a quick visual way of allowing the CFO or other financial management staff to look at which manufactures they want to negotiate better pricing with. You can also click on a segment of the donut to filter the rest of the page to just that manufacture.

1. Add a Donut Chart to the canvas.

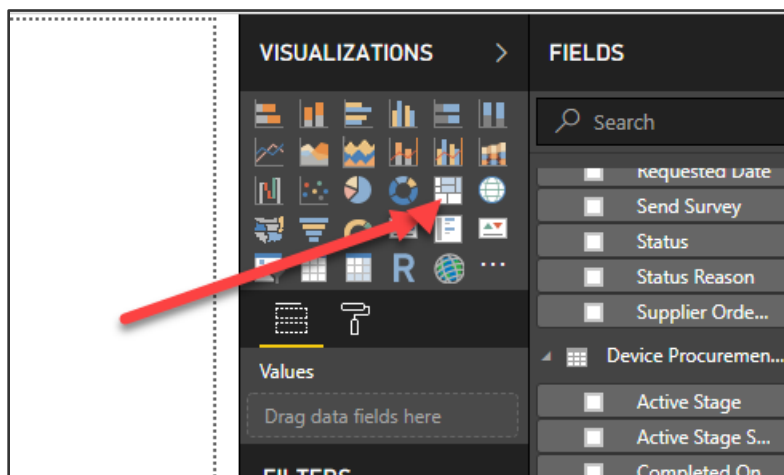


2. Drag **Title** from the **Manufacturers** table to the Legend target and **Price** from the **Devices** table to the Values target.

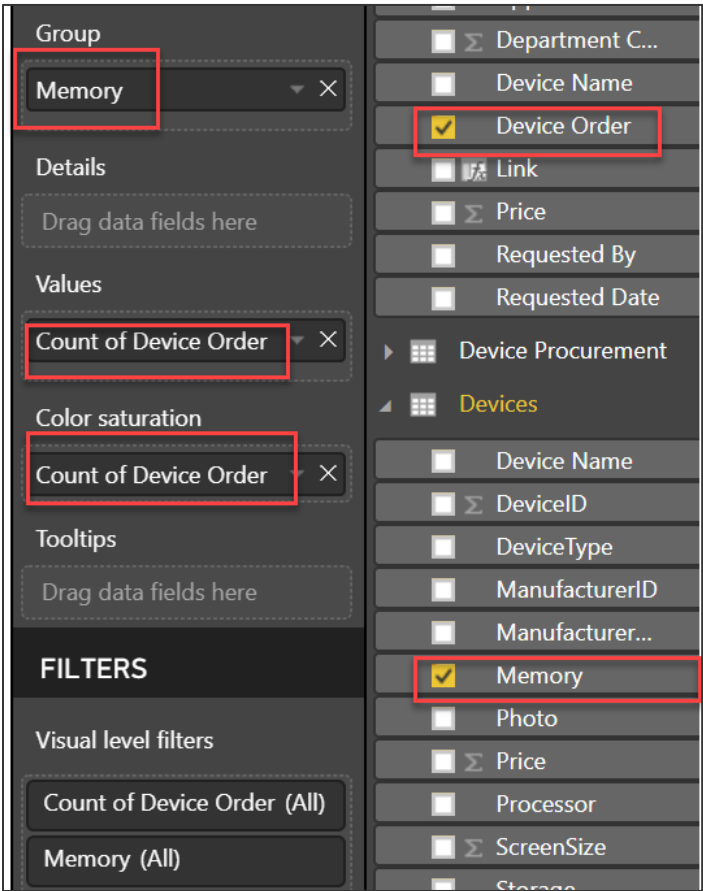


Task 5: Add a Tree Map by Device Name

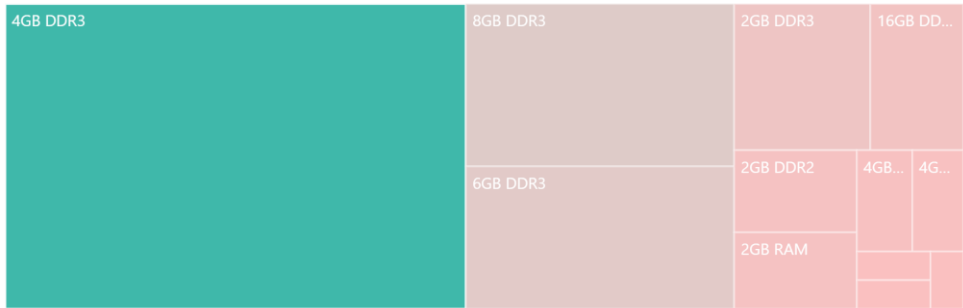
1. Add Tree Map visual to the canvas.



2. Drag **Memory** from the Device table to the **Group target**, Device Order from Device Order table to the Values target, and Device Order to the Color Saturation.

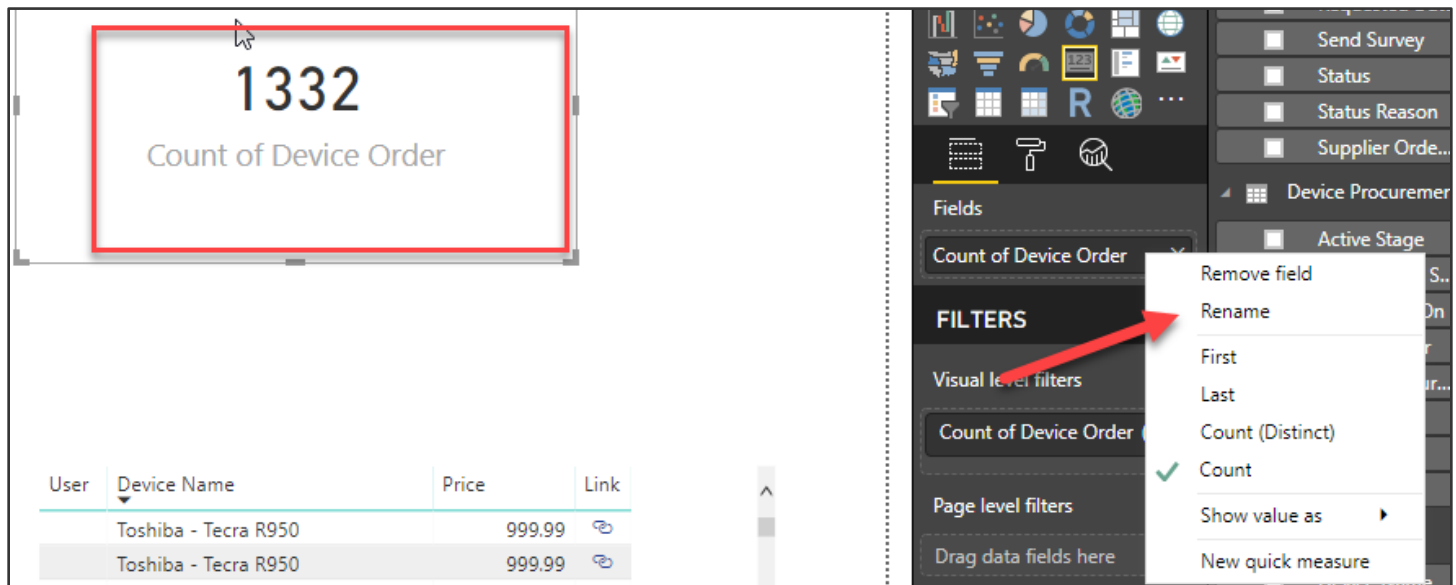


Count of Device Order and Count of Device Order by Memory

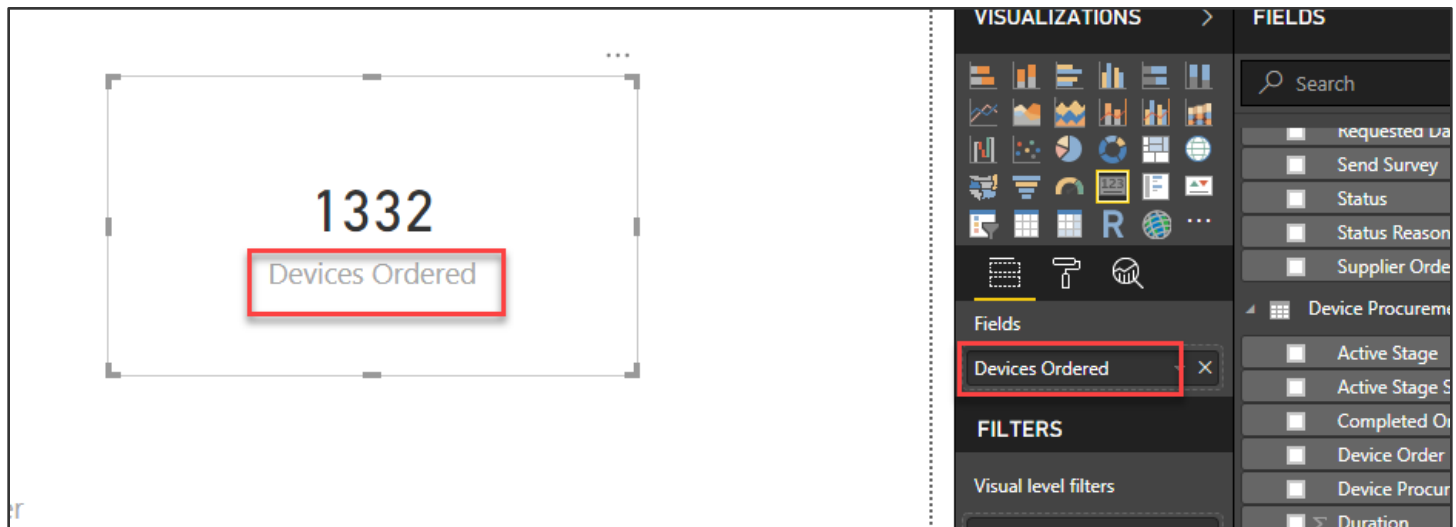


Task 6: Format the Statistics Cards

1. Select the Count of Device Order card and click Rename.



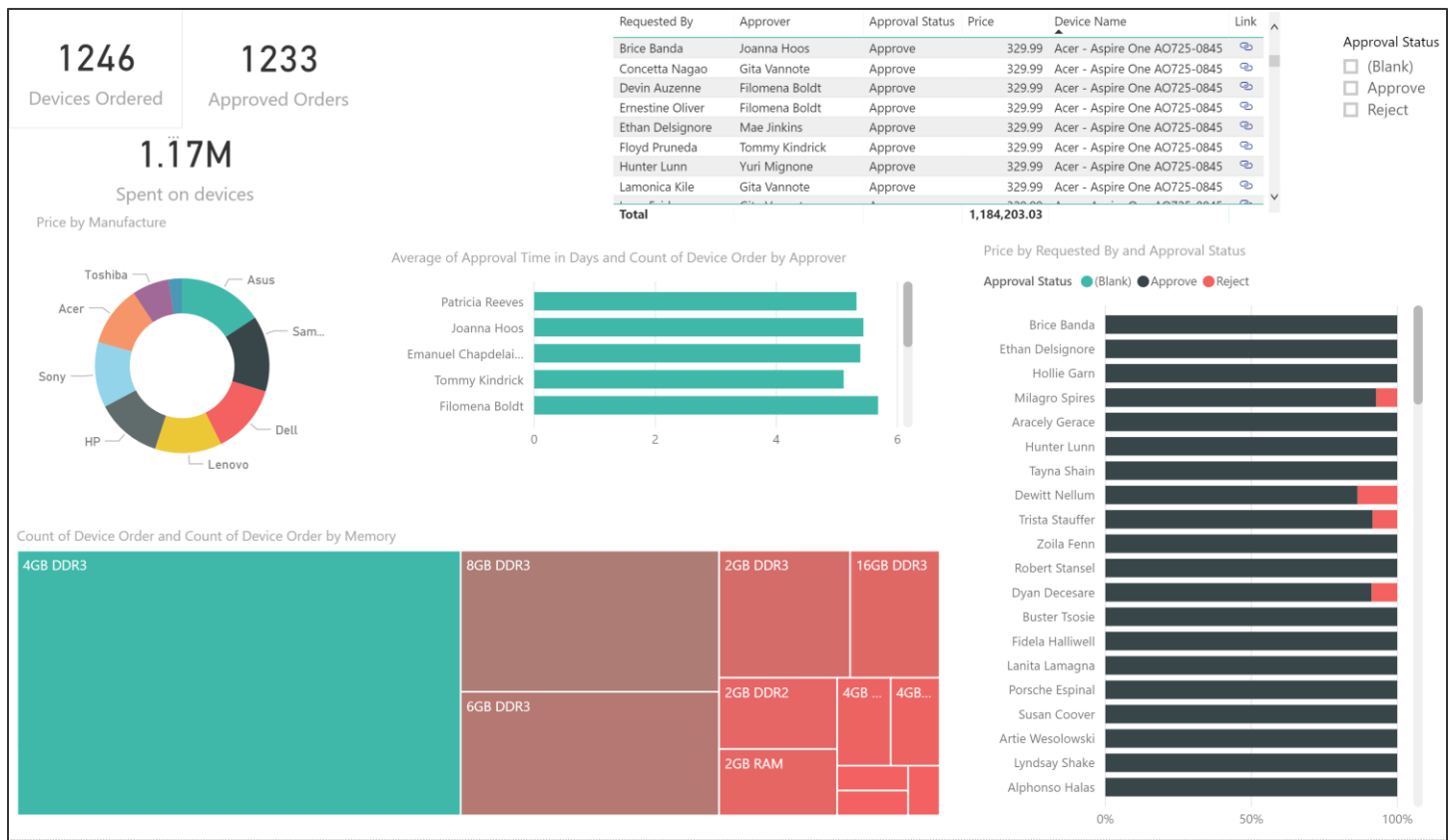
2. Rename it Devices Ordered.



3. You may rename other visuals as you see appropriate.

Task 7: Arrange the visuals on the report page

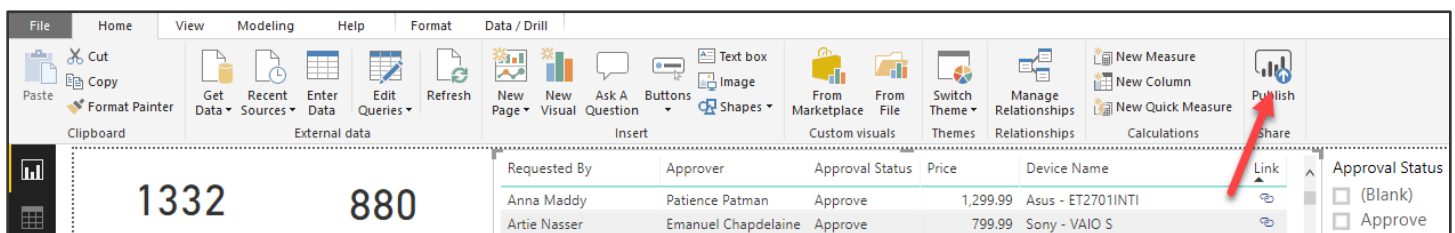
4. Arrange Visuals on the report page as shown in the image below.



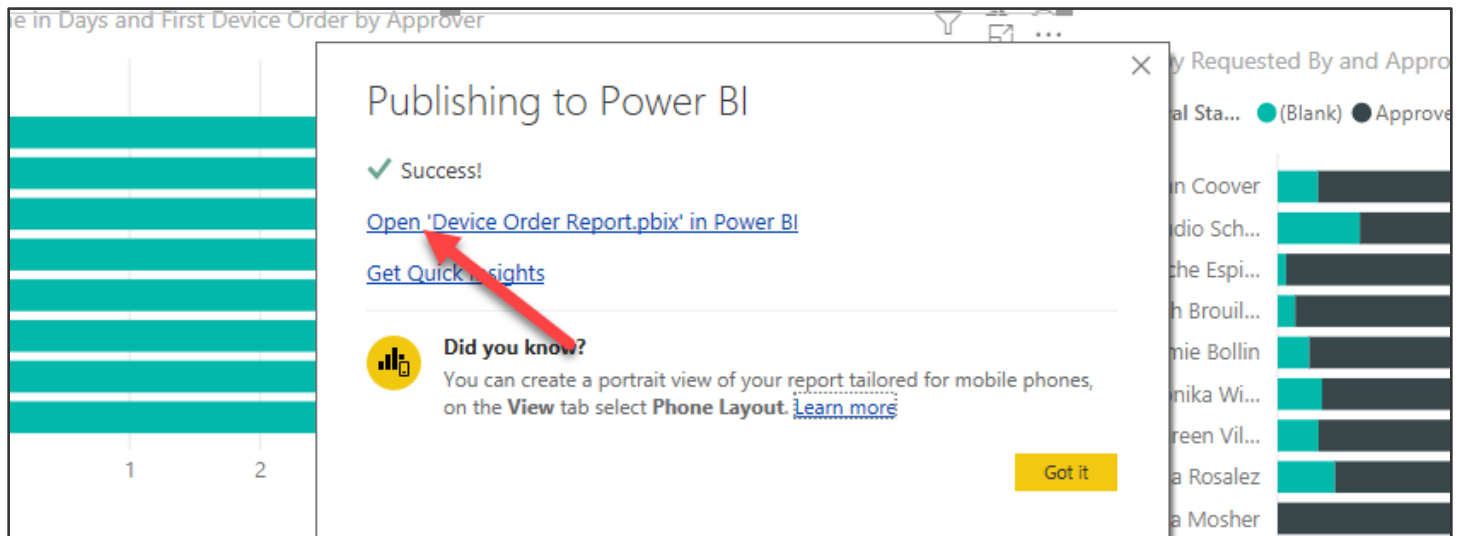
Exercise 6: Publish and Share

Task 1: Publish and Share

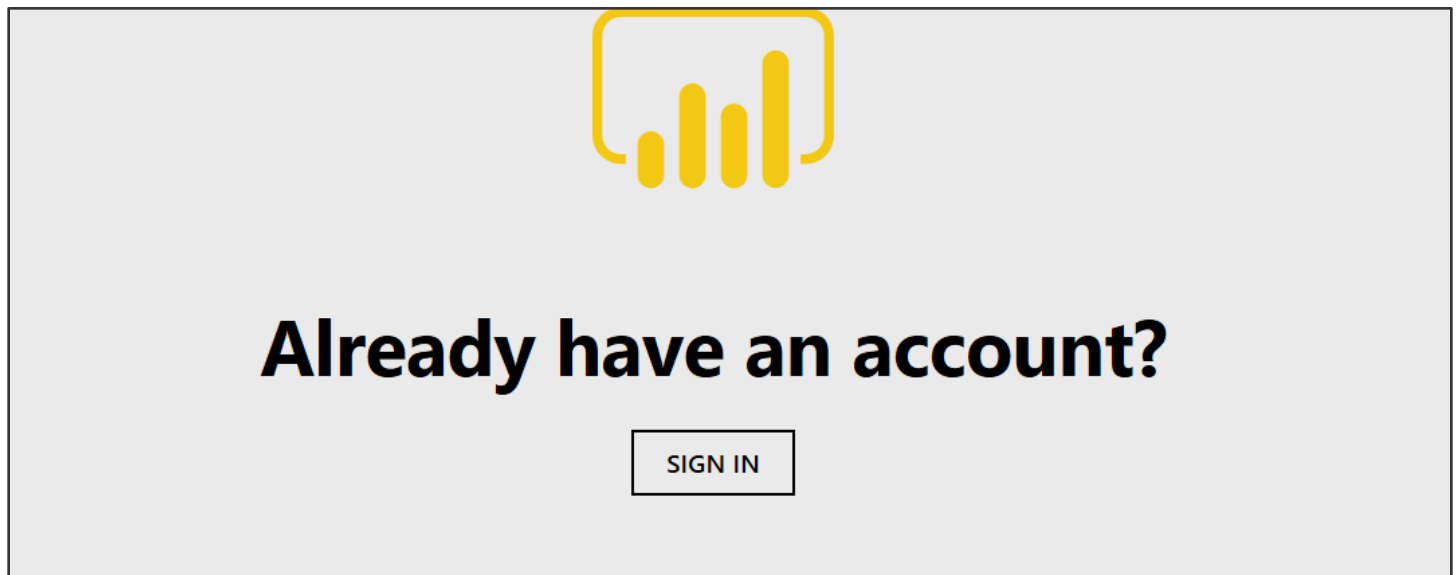
1. Make sure you are logged in your environment.
2. Click Save.
3. Name the report Device Order Report and save it on your machine.
4. Click Publish.



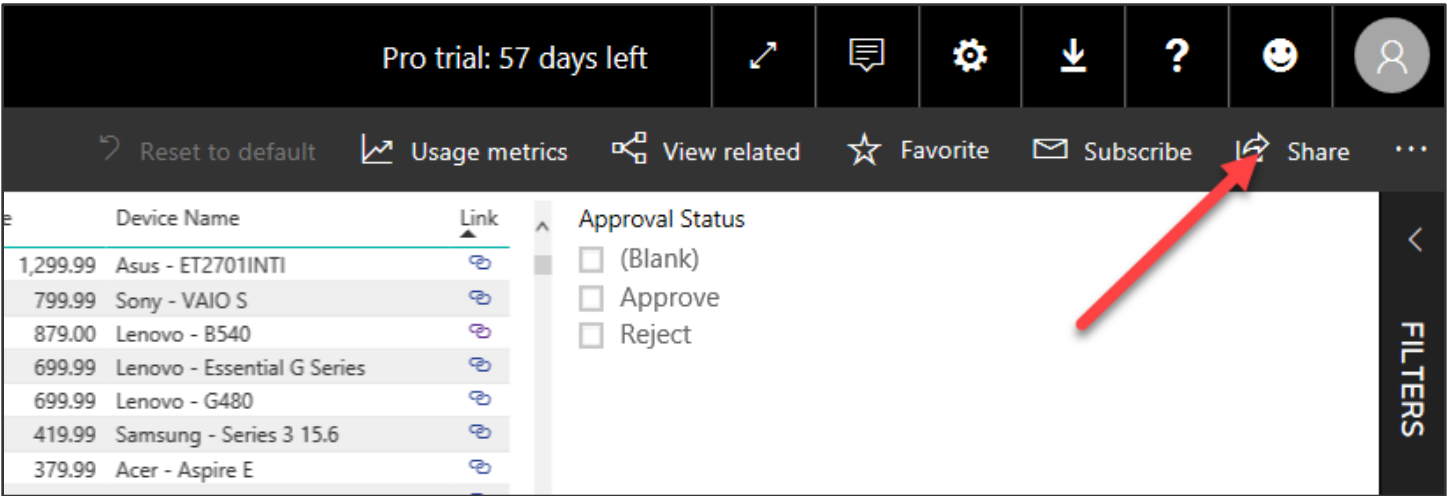
5. Click Open in Power BI.



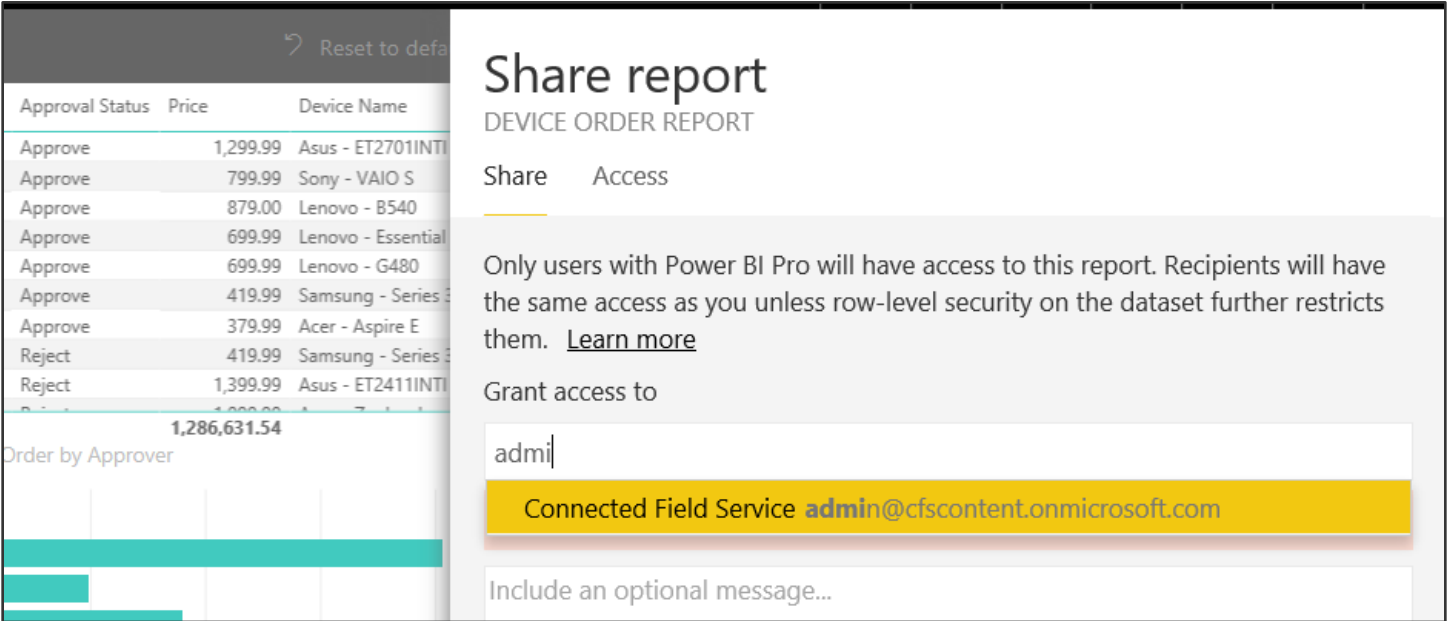
6. Click Sign in.



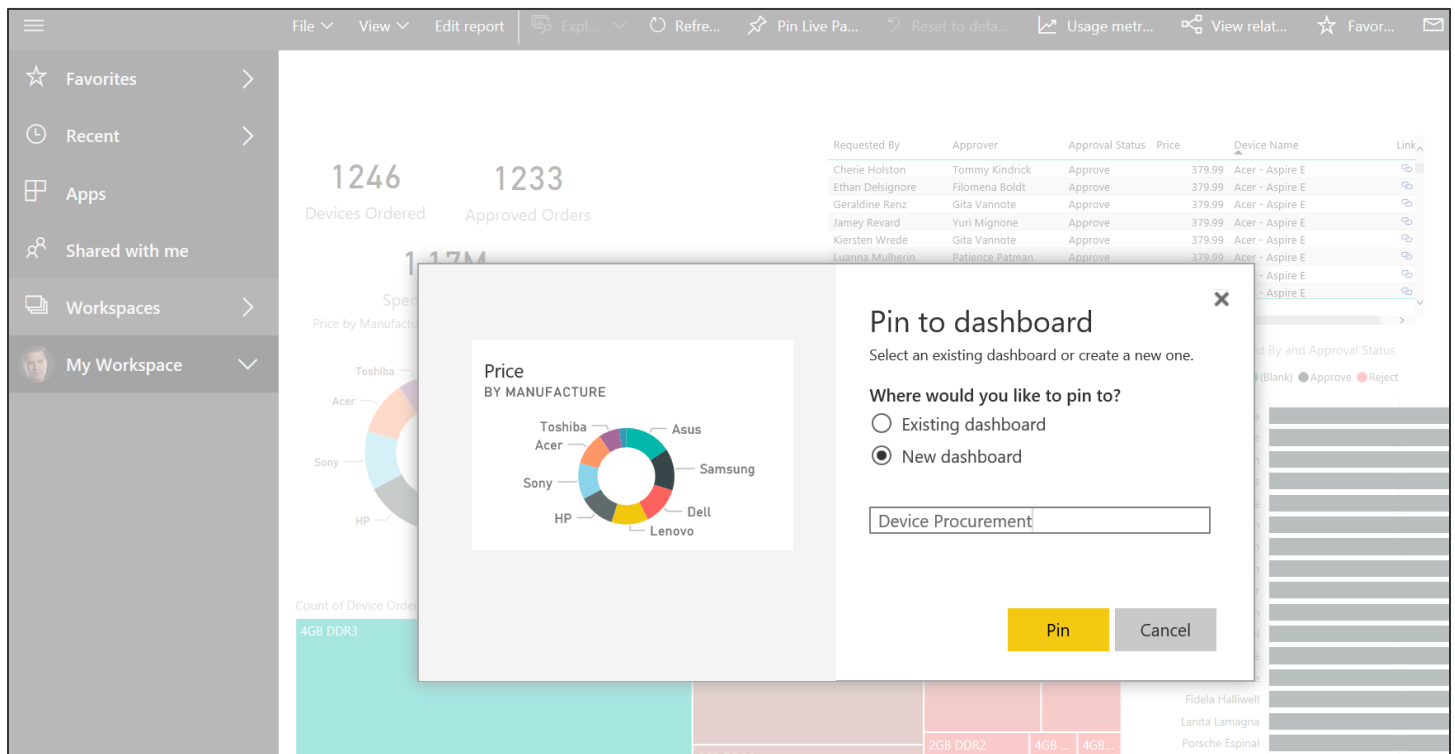
7. Click Share.



8. You can share with any user in your organization.



From within PowerBI.Com you can also add the report visualizations to an existing dashboard or create a new dashboard



You can also embed the Power BI Visualizations in a personal dashboard in CDS. You can read more about that here <https://docs.microsoft.com/en-us/dynamics365/customer-engagement/admin/use-power-bi#embed--visualizations-on-personal-dashboards> if you have time give it a try!

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